Mini System FW21/20/21/22/37

Service
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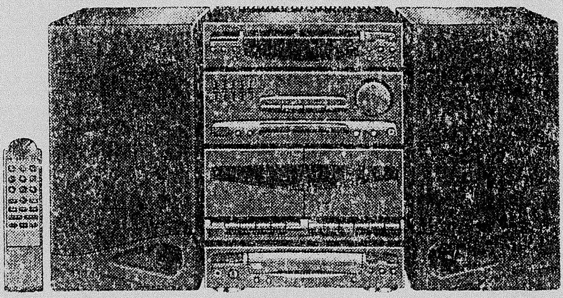

Service Manual

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CLASS 1
LASER PRODUCT
3122 110 03420

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

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PHILIPS

SPECIFICATIONS

GENERAL

Mains voltage/setting	120V - 220V - 240V Serviceable Set at 120V for -/37 Set at 220V for -/20/22 Set at 240V for -/25/30
	120V - 230V Switchable Set at 230V for -/21/34/39
Mains frequency	50Hz - 60Hz
Clock Accuracy between -5°C to +35°C	< 4 seconds/day
Mains breakdown backup	< 10 minutes
Power consumption	82W max.
Dimension centre unit	555 x 306 x 301mm

TUNER : FM SECTION

	TUNER 92	ECO4 *
Tuning range	87.5MHz - 108MHz	
IF frequency	10.7MHz	
Aerial input	75Ω coaxial 300Ω screw type adaptor for -/37	
Sensitivity at 26dB S/N	< 3.5µV	< 7µV
Selectivity at 600kHz bandwidth	> 45dB	> 30dB
IF rejection	> 60dB	> 60dB
Image rejection	> 25dB	> 25dB

TUNER : AM SECTION

Tuning range	MW	522kHz - 1611kHz	
	MW	530kHz - 1710kHz for -/21/37	
	LW	153kHz - 279kHz	
IF frequency		450kHz	
Sensitivity at 26dB S/N	MW	< 3.0mV/M	< 1.3mV/M
	LW	< 6.0mV/M	< 4.5mV/M
Selectivity at 18kHz bandwidth	MW	> 24dB	> 20dB
	LW	> 28dB	> 24dB
IF rejection	MW	> 35dB	> 24dB
	LW	> 40dB	> 26dB
Image rejection	MW	> 27dB	> 28dB
	LW	> 40dB	> 30dB

AMPLIFIER

Output power at 10% distortion		2 x 10W -1dB
Speaker impedance		2 x 6Ω
Frequency response within -3dB		63Hz - 14kHz
Equalizer control		-6dB to +6dB
Dynamic bass boost at -40dB volume		+7dB at 100Hz
Headphone output at 32Ω		25mW
Input sensitivity	Aux/TV	400mV at 47kΩ
	Mic	1.5mV at 600Ω for -/21

CASSETTE RECORDER

Number of track		2 x 2 stereo
Tape speed		4.76 cm/sec ± 2% 1.7 x 4.76 cm/sec
Wow and flutter		< 0.4% DIN
Fast-wind time C60		130 sec
Bias system		88kHz ± 4kHz
Recording playback frequency response within -8dB		125Hz - 12.5kHz
Signal to noise ratio	Recording	> 50dB (IEC I) > 54dB (IEC II)
	Dubbing	> 48dB

COMPACT DISC

Frequency response within ± 2dB	20Hz - 20kHz
Signal/Hiss ratio	> 75dB
Distortion at 1kHz	< 0.03%
Channel difference at 1kHz	< 2dB
Channel crosstalk at 1kHz	> 60dB
De-emphasis	0 or 15/50 µS (Switched by subcode on the disc)

**** Unless otherwise stated refer to Tuner 92 Specifications.***

SERVICE KEY TEST TABLE

Timer/News/Tuner keys	Display	Function keys	Display	CD Keys	Display
Timer	18	Standby	1E	Repeat	29
Timer/News set	16	Dolby B NR	1D	Scan	2A
Clock set	15	High speed dubbing	05	Shuffle	2B
Presets Down	12	Dynamic bass boost	20	Prog/Review	25
Presets Up	13	Spatial sound	1F	Clear	27
Band	11	CD	0D	Edit	26
Tuning Down	19	Tuner	0E	Stop	24
Tuning Up	1A	Tape	0F	Play/Pause	28
Mono	14	Aux/TV	10	Open/close	21
Autoprog	1C	Jazz	09	Previous	22
Prog	1B	Pop	0A	Next	23
		Classic	0B		
		Flat	0C		

Figure 1

TUNER SERVICE TEST FREQUENCIES

PRESET	Eur	East	USA	Jap	Osea	Osea+SW
1	87.50 MHz	65.81 MHz	87.5 MHz	76.0 MHz	87.50 MHz	87.50 MHz
2	98.00 MHz	74.00 MHz	98.0 MHz	90.0 MHz	98.00 MHz	98.00 MHz
3	108.00 MHz	87.50 MHz	108.0 MHz	522 kHz	108.00 MHz	108.00 MHz
4	522 kHz	98.00 MHz	530 kHz	558 kHz	530 kHz	530 kHz
5	558 kHz	108.00 MHz	560 kHz	999 kHz	560 kHz	560 kHz
6	999 kHz	522 kHz	1000 kHz	1494 kHz	1000 kHz	1000 kHz
7	1494 kHz	558 kHz	1600 kHz	1611 kHz	1600 kHz	1600 kHz
8	1611 kHz	999 kHz	1710 kHz		1710 kHz	1710 kHz
9	153 kHz	1494 kHz				3.900 MHz
10	156 kHz	1611 kHz				4.250 MHz
11	198 kHz	153 kHz				8.000 MHz
12	270 kHz	156 kHz				11.900 MHz
13	279 kHz	198 kHz				12.100 MHz
14		270 kHz				
15		279 kHz				

Figure 2

CD ERROR CODES TABLE

Error codes	Check area	Remarks
ERR 1002	ICs 7000, 7060 and 7080	Focus error, no disc
ERR 1007	CDM 12 and Disc	Subcode error, no valid subcode
ERR 1008	Bad Disc and Lens	TOC error, out of lead-in area while reading TOC
ERR 1009	IC 7101 and 7102	CD decoder error
ERR 1010	IC 7000 and 7080	Radial error
ERR 1012	ICs 7000 and 7660	Fatal sledge error
ERR 1013	ICs 7102, 7140, 7141 and 7660	Turntable motor error
ERR 1030	CDM 12 and IC 7000	Too many grooves to jump
ERR 1031	CDM 12 and IC 7000	Search timeout
ERR 1032	CDM 12 and IC 7000	Search binary error
ERR 1033	CDM 12 and IC 7000	Search index error
ERR 1034	CDM 12 and IC 7000	Search time error
ERR 1037	CDM 12 and IC 7000	Selection error
ERR 1050	Operating error	Edit calculation error
ERR 1051	Operating error	Edit track count error
ERR 1052	Operating error	Edit optimal error

Figure 3

ESD

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).

Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

Keep components and tools also at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.

Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.

Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.

Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

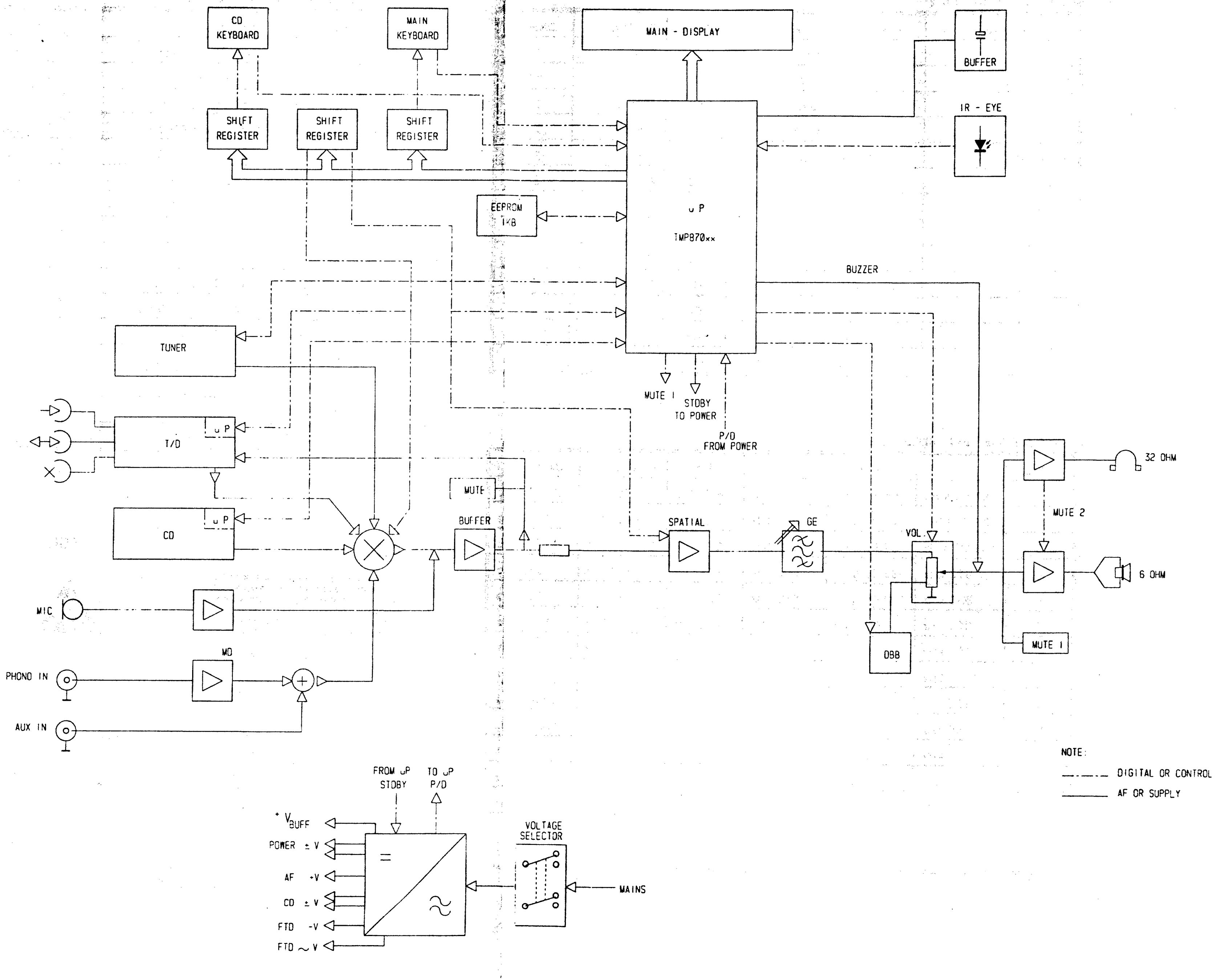
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

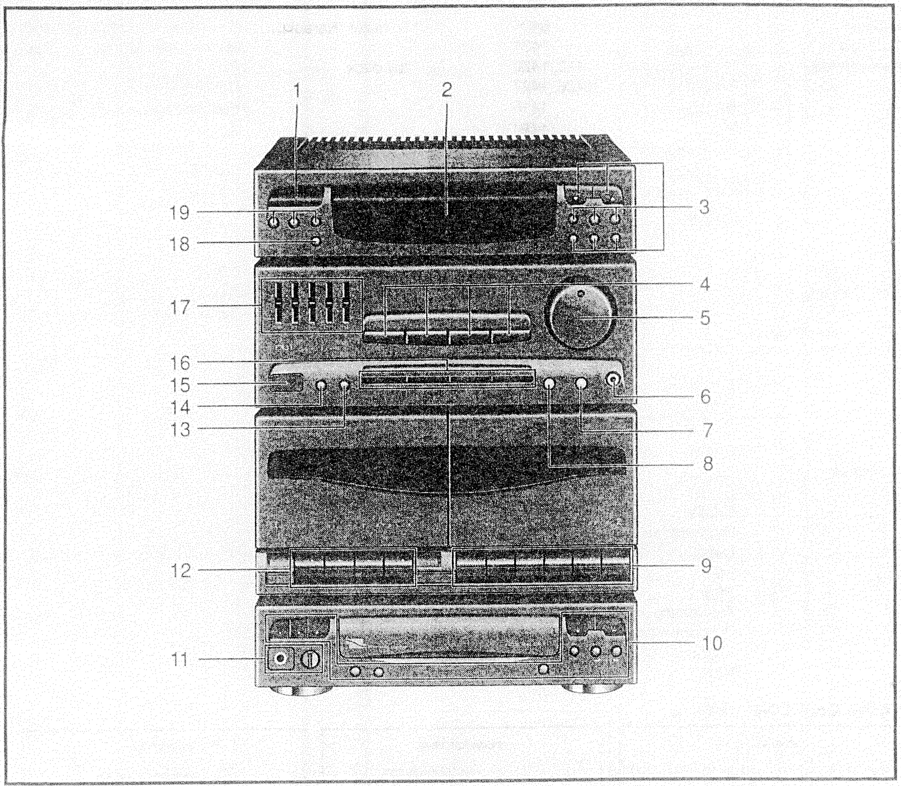
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.

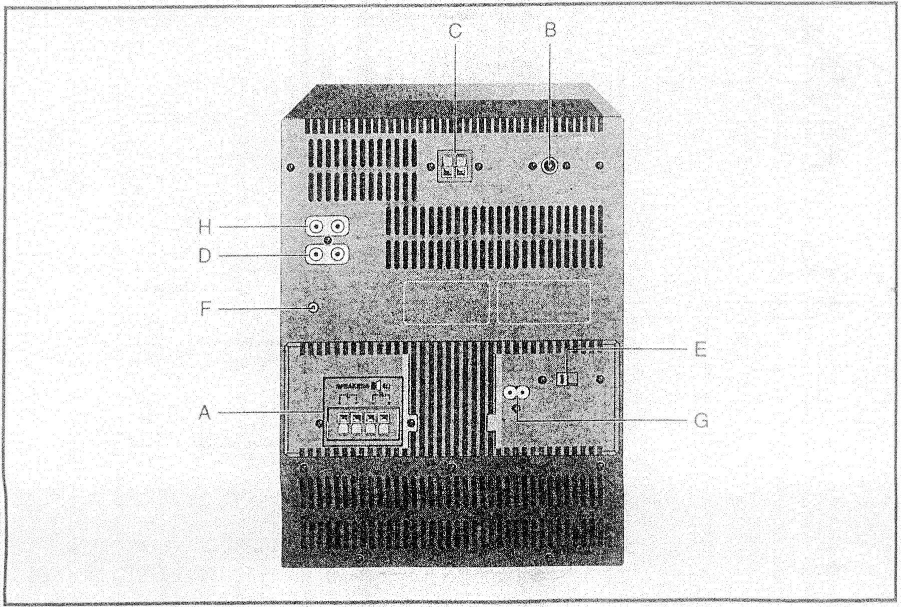
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

BLOCK DIAGRAM


CD KEYBOARD
MAIN KEYBOARD
MAIN - DISPLAY
BUFFER
IR - EYE
SHIFT REGISTER
SHIFT REGISTER
SHIFT REGISTER
EEPROM 1KB
μP
TMP870xx
BUZZER
TUNER
T/D
μP
CD
μP
MUTE 1
STDBY TO POWER
P/D FROM POWER
MUTE
BUFFER
SPATIAL
GE
VOL.
32 OHM
MUTE 2
6 OHM
MUTE 1
DBB
MIC
PHONO IN
MD
AUX IN
FROM μP STDBY
TO μP P/D
+VBUFF
POWER ±V
AF -V
CD ±V
FTD -V
FTD ~V
VOLTAGE SELECTOR
MAINS
NOTE:
DIGITAL OR CONTROL
AF OR SUPPLY


1
2
19
18
3
17
4
5
16
15
14
13
6
7
8
12
9
11
10



PCS 63 064

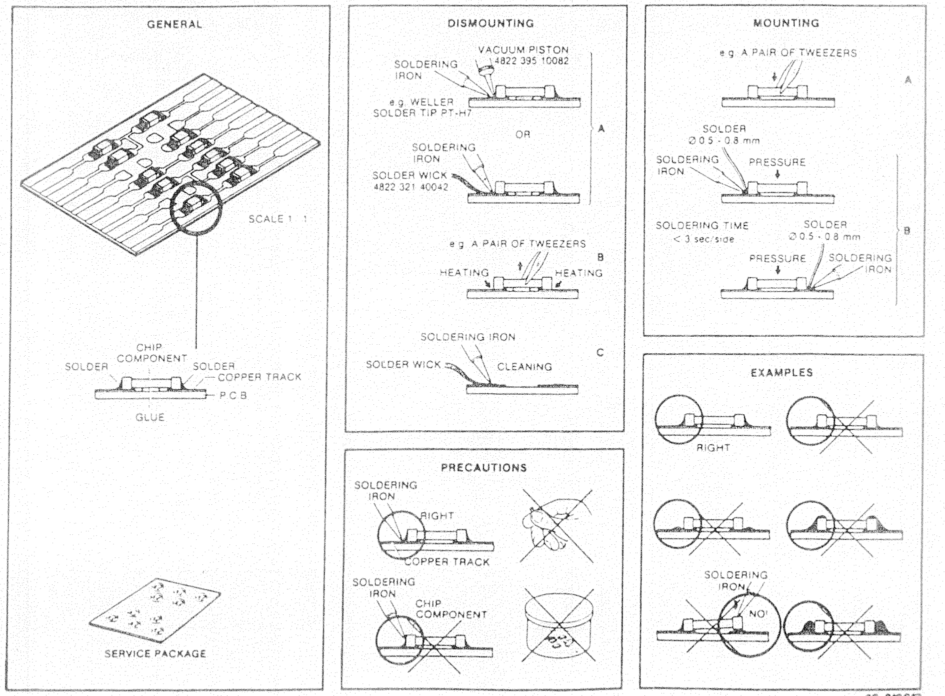
CONNECTIONS AND CONTROLS

1	IR sensor		6405
2	FTD display		1401
3	Tuner controls	Preset up/down	1419, 1420
		Tuning up/down	1426, 1427
		Band	1418
		Mono	1421
		Autoprogram	1429
		Program	1428
4	Function controls	CD	1414
		Tuner	1415
		Tape	1416
		Aux/TV	1417
5	Volume control		3534
6	Headphone socket		1510
7	Spatial sound		1432
8	Dynamic bass boost		1433
9	Record/playback deck	Record	
		Play	
		Rewind	
		Fast forward	
		Stop/eject	
		Pause	
10	CD controls	Repeat	1914
		Scan	1913
		Shuffle	1912
		Program/review	1915
		Clear	1916
		Edit	1917
		Stop	1922
		Play/pause	1921
		Tray open/close	1918
		Previous	1919
		Next	1920

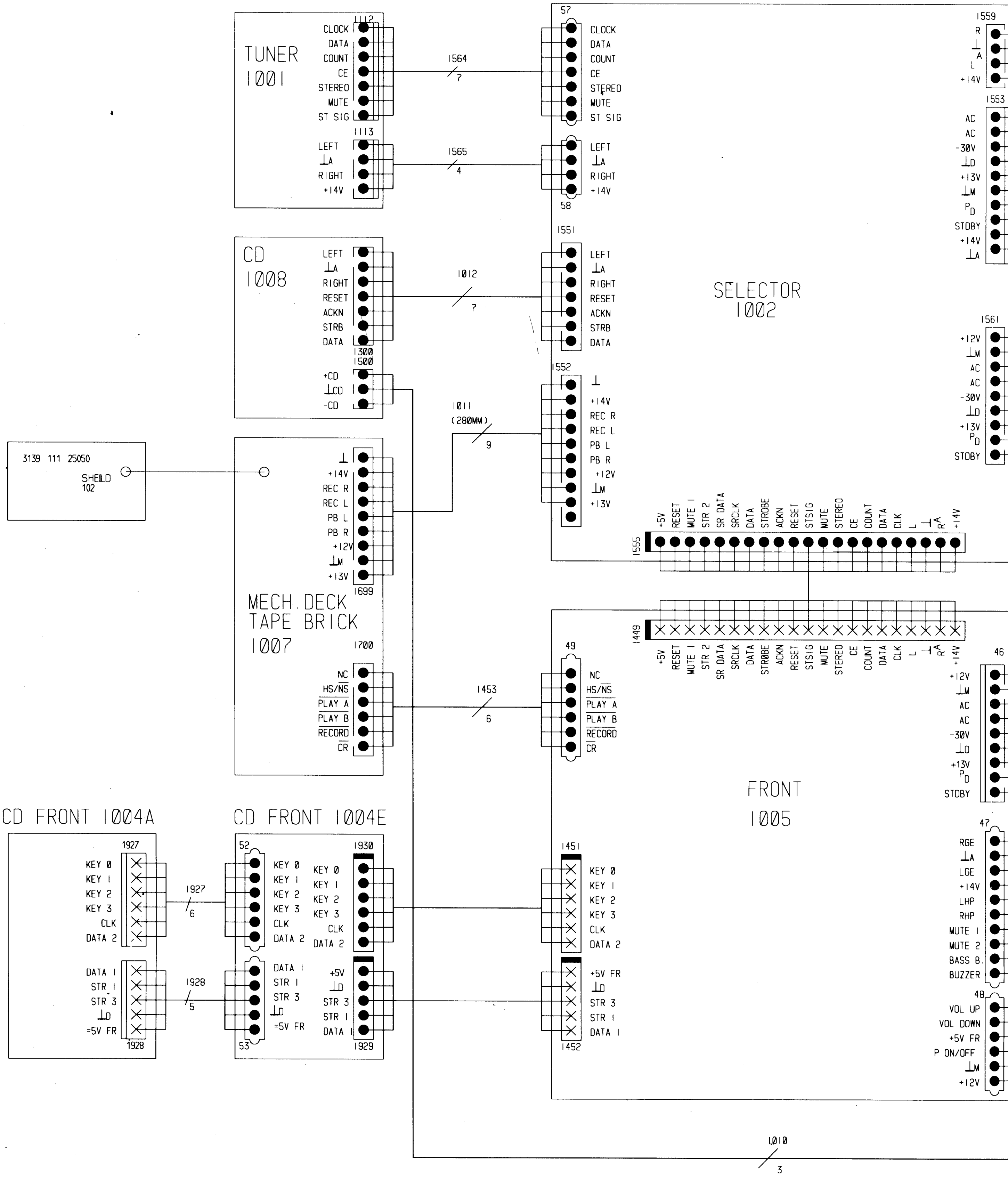
11	Mic mixer (Karaoke)	Mic socket *)	1502
		Mixer control *)	3507
12	Play deck	Play	
		Rewind	
		Fast forward	
		Stop/eject	
13	High speed dubbing		1434
14	Not applicable		
15	Power on/off (Standby)		1431
16	Not applicable		
17	Graphic equalizer		3507 - 3511
18	Clock set		1422
19	Timer/News control	Timer	1425
		News	1424
		Timer/News set	1423
A	Speaker output socket		1260
B	FM Aerial socket		1101
C	AM Aerial socket		1103
D	Aux/TV input socket		1554
E	Voltage selector *)		1262
F	System reset switch		1558
G	AC supply socket		1261
H	Not applicable		

*) for /21 only

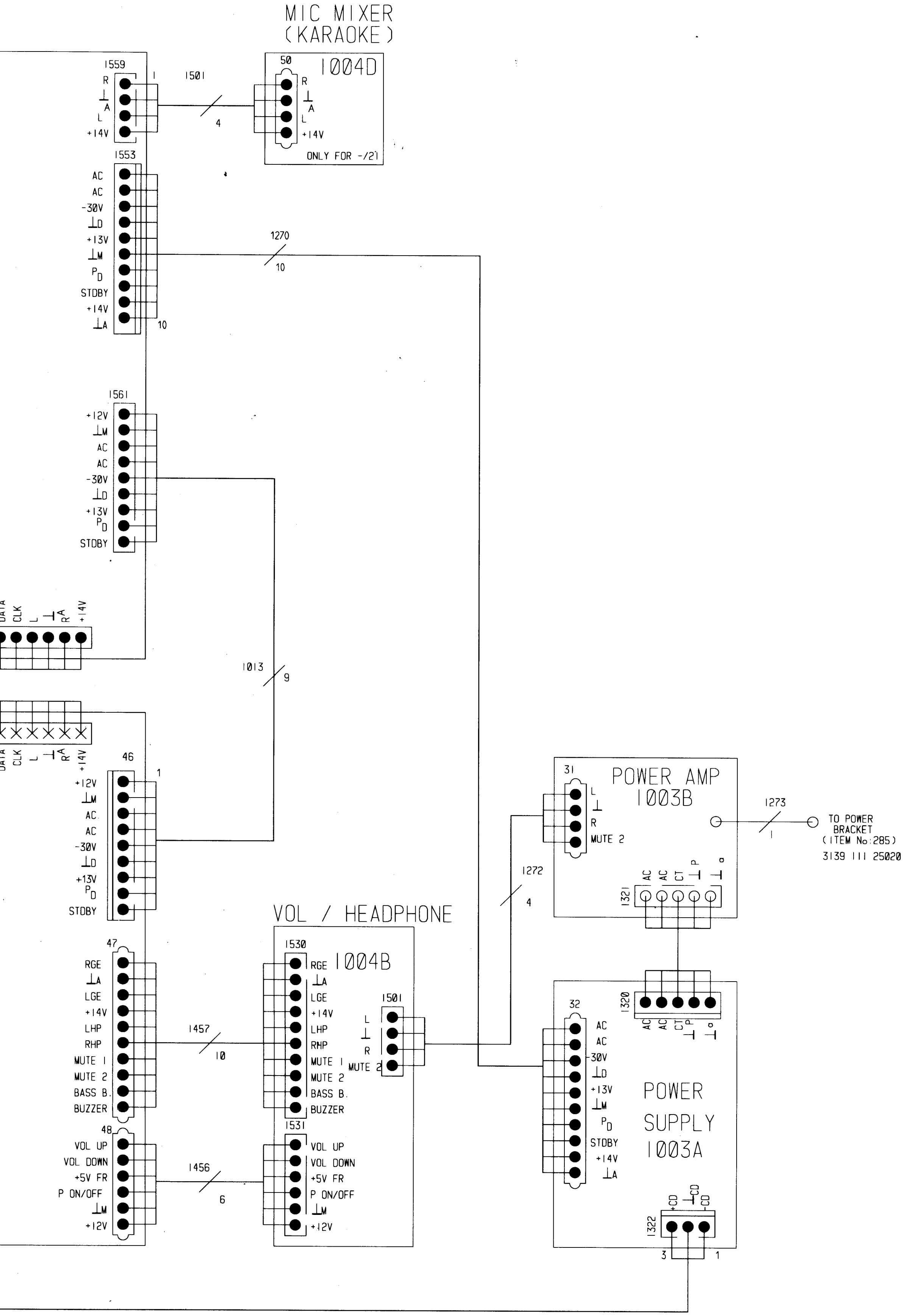
HANDLING CHIP COMPONENTS

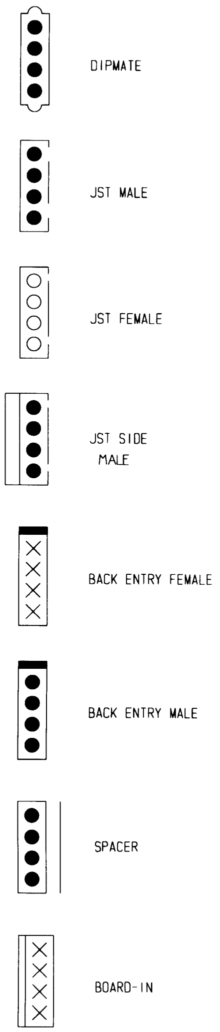

GENERAL
SCALE 1 : 1
CHIP COMPONENT
SOLDER
SOLDER
COPPER TRACK
P.C.B
GLUE
SERVICE PACKAGE
DISMOUNTING
VACUUM PISTON 4822 395 10082
SOLDERING IRON
e.g. WELLER SOLDER TIP PT-H7
OR
SOLDERING IRON
SOLDER WICK 4822 321 40042
A
e.g. A PAIR OF TWEEZERS
B
HEATING
HEATING
SOLDERING IRON
SOLDER WICK
CLEANING
C
MOUNTING
e.g. A PAIR OF TWEEZERS
A
SOLDER Ø 0.5 - 0.8 mm
SOLDERING IRON
PRESSURE
SOLDERING TIME < 3 sec/side
SOLDER Ø 0.5 - 0.8 mm
B
PRESSURE
SOLDERING IRON
PRECAUTIONS
SOLDERING IRON
RIGHT
COPPER TRACK
SOLDERING IRON
CHIP COMPONENT
EXAMPLES
RIGHT
SOLDERING IRON
NO!
27 012C12

WIRING DIAGRAM



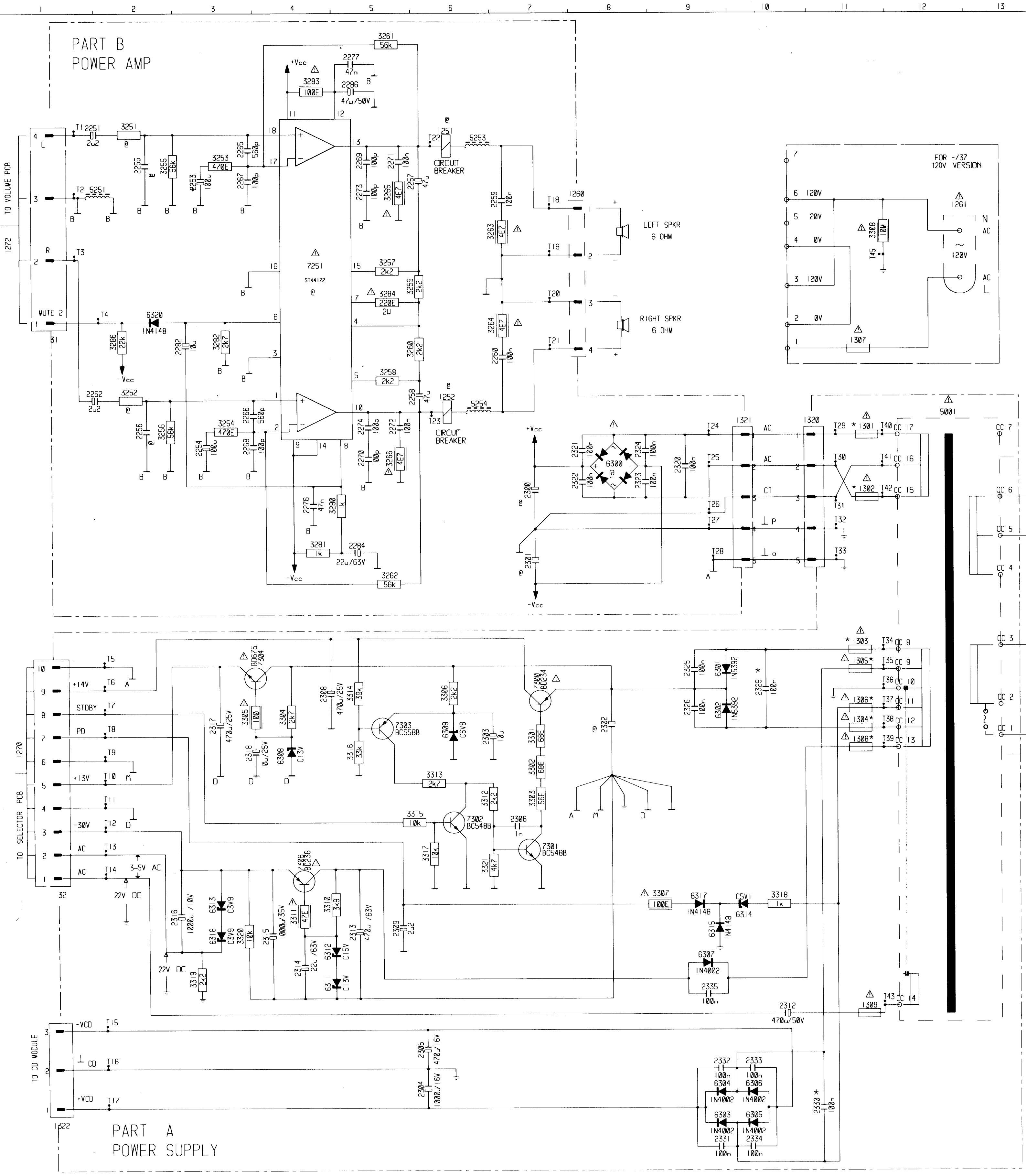
TUNER 1001
1112
CLOCK
DATA
COUNT
CE
STEREO
MUTE
ST SIG
1113
LEFT
⊥A
RIGHT
+14V
1564
7
1565
4
CD 1008
LEFT
⊥A
RIGHT
RESET
ACKN
STRB
DATA
1300
1500
+CD
⊥CD
-CD
1012
7
1011 (280MM)
9
3139 111 25050
SHEILD 102
+14V
REC R
REC L
PB L
PB R
+12V
⊥M
+13V
1699
MECH. DECK TAPE BRICK 1007
1700
NC
HS/NS
PLAY A
PLAY B
RECORD
CR
1453
6
CD FRONT 1004A
1927
KEY 0
KEY 1
KEY 2
KEY 3
CLK
DATA 2
1927
6
DATA 1
STR 1
STR 3
⊥D
=5V FR
1928
1928
5
CD FRONT 1004E
52
1930
KEY 0
KEY 1
KEY 2
KEY 3
CLK
DATA 2
DATA 1
STR 1
STR 3
⊥D
=5V FR
+5V
⊥D
STR 3
STR 1
DATA 1
53
1929
57
CLOCK
DATA
COUNT
CE
STEREO
MUTE
ST SIG
LEFT
⊥A
RIGHT
+14V
58
1551
LEFT
⊥A
RIGHT
RESET
ACKN
STRB
DATA
1552
⊥
+14V
REC R
REC L
PB L
PB R
+12V
⊥M
+13V
SELECTOR 1002
1555
+5V
RESET
MUTE 1
STR 2
SR DATA
SRCLK
DATA
STROBE
ACKN
RESET
STSIG
MUTE
STEREO
CE
COUNT
DATA
CLK
L
⊥
⊥A
R
+14V
1559
R
⊥A
L
+14V
1553
AC
AC
-30V
⊥D
+13V
⊥M
PD
STDBY
+14V
⊥A
1561
+12V
⊥M
AC
AC
-30V
⊥D
+13V
PD
STDBY
1449
+5V
RESET
MUTE 1
STR 2
SR DATA
SRCLK
DATA
STROBE
ACKN
RESET
STSIG
MUTE
STEREO
CE
COUNT
DATA
CLK
L
⊥
⊥A
R
+14V
49
NC
HS/NS
PLAY A
PLAY B
RECORD
CR
FRONT 1005
1451
KEY 0
KEY 1
KEY 2
KEY 3
CLK
DATA 2
+5V FR
⊥D
STR 3
STR 1
DATA 1
1452
46
+12V
⊥M
AC
AC
-30V
⊥D
+13V
PD
STDBY
47
RGE
⊥A
LGE
+14V
LHP
RHP
MUTE 1
MUTE 2
BASS B.
BUZZER
48
VOL UP
VOL DOWN
+5V FR
P ON/OFF
⊥M
+12V
1010
3

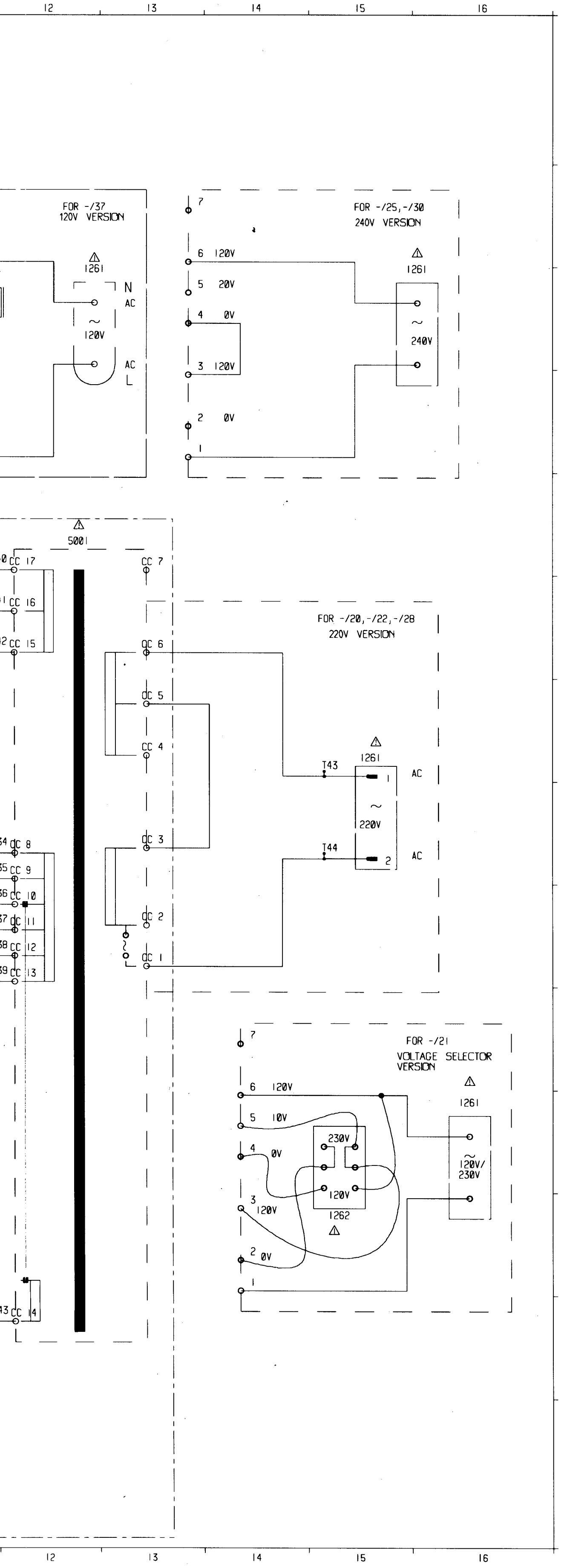

MIC MIXER
(KARAOKE)
50
1004D
R
⊥A
L
+14V
ONLY FOR -/21
1559
R
⊥A
L
+14V
1
1501
4
1553
AC
AC
-30V
⊥D
+13V
⊥M
PD
STDBY
+14V
⊥A
10
1270
10
1561
+12V
⊥M
AC
AC
-30V
⊥D
+13V
PD
STDBY
DATA
CLK
L
⊥A
R
+14V
1013
9
46
1
+12V
⊥M
AC
AC
-30V
⊥D
+13V
PD
STDBY
47
RGE
⊥A
LGE
+14V
LHP
RHP
MUTE 1
MUTE 2
BASS B.
BUZZER
48
VOL UP
VOL DOWN
+5V FR
P ON/OFF
⊥M
+12V
1457
10
1456
6
VOL / HEADPHONE
1530
1004B
RGE
⊥A
LGE
+14V
LHP
RHP
MUTE 1
MUTE 2
BASS B.
BUZZER
1531
VOL UP
VOL DOWN
+5V FR
P ON/OFF
⊥M
+12V
1501
L
⊥
R
MUTE 2
1272
4
31
POWER AMP
1003B
L
⊥
R
MUTE 2
1273
1
TO POWER
BRACKET
(ITEM No:285)
3139 111 25020
1321
AC
AC
CT
⊥P
⊥o
1320
AC
AC
CT
⊥P
⊥o
32
AC
AC
-30V
⊥D
+13V
⊥M
PD
STDBY
+14V
⊥A
POWER
SUPPLY
1003A
1322
+CD
⊥CD
-CD
3
1


DIPMATE
JST MALE
JST FEMALE
JST SIDE
MALE
BACK ENTRY FEMALE
BACK ENTRY MALE
SPACER
BOARD-IN

PCS 63 066

OWER CIRCUIT DIAGRAM


PART B
POWER AMP
TO VOLUME PCB
1272
+Vcc
-Vcc
7251
STK4122
CIRCUIT BREAKER
1251
1252
5253
5254
1260
LEFT SPKR
6 OHM
RIGHT SPKR
6 OHM
FOR -/37
120V VERSION
1261
120V
AC
N
L
1307
3308
10W
6300
1321
1320
5001
AC
CT
⊥ P
⊥ a
1301
1302
1303
1305
1306
1304
1308
1309
TO SELECTOR PCB
1270
STBY
PD
+14V
+13V
-30V
22V DC
3-5V AC
7304
BD675
7300
BD234
7303
BC558B
7302
BC548B
7301
BC548B
7306
BD236
6320
1N4148
6301
1N5392
6302
1N5392
6307
1N4002
6317
1N4148
6314
6315
TO CD MODULE
-VCD
⊥ CD
+VCD
1322
PART A
POWER SUPPLY
6304
6306
6303
6305
IN4002
2312
470u/50V
2305
470u/16V
2304
1000u/16V
2330
1 2 3 4 5 6 7 8 9 10 11 12 13


12
13
14
15
16
FOR -/37
120V VERSION
1261
N
AC
120V
AC
L
FOR -/25,-/30
240V VERSION
7
6 120V
5 20V
4 0V
3 120V
2 0V
1
1261
240V
5001
CC 17
CC 16
CC 15
CC 7
CC 6
CC 5
CC 4
CC 3
CC 2
CC 1
CC 8
CC 9
CC 10
CC 11
CC 12
CC 13
CC 14
FOR -/20,-/22,-/28
220V VERSION
T43
T44
1261
AC
220V
AC
7
FOR -/21
VOLTAGE SELECTOR
VERSION
1261
6 120V
5 10V
4 0V
3 120V
2 0V
1
230V
120V
1262
120V/
230V

1251	B 6
1252	E 6
1260	B 7
1261	G15
1301	E11
1302	F11
1303	H11
1304	I11
1305	H11
1306	I11
1307	D11
1308	I11
1309	M11
1320	E11
1321	E10
1322	N 1
2251	B 1
2252	E 1
2253	B 3
2254	F 3
2255	B 2
2256	E 2
2257	B 6
2258	E 6
2259	B 7
2260	D 7
2265	B 3
2266	E 3
2267	B 3
2268	F 3
2269	B 5
2270	F 5
2271	B 5
2272	E 5
2273	B 5
2274	E 5
2276	F 4
2277	A 5
2282	D 3
2284	G 5
2286	A 5
2300	F 7
2301	G 7
2302	I 8
2303	I 6
2304	N 6
2305	M 6
2306	J 7
2308	I 4
2309	L 5
2312	M10
2313	L 5
2314	L 4
2315	L 4
2316	L 2
2317	I 3
2318	I 3
2320	F 9
2321	F 8
2322	F 8
2323	F 8
2324	F 8
2325	H 9
2326	I 9
2329	I10
2330	N11
2331	N 9
2332	M 9
2333	M10
2334	N10
2335	M 9
31	D 1
32	K 1
3251	B 2
3252	E 2
3253	B 3
3254	E 3
3255	B 2
3256	E 2
3257	C 5
3258	E 5
3259	D 6
3260	D 6
3261	A 5
3262	G 5
3263	C 7
3264	D 7
3265	B 5
3266	F 5
3280	F 5
3281	G 4
3282	D 3
3283	A 4
3284	D 5
3286	D 2
3301	I 7
3302	J 7
3303	J 7
3304	I 4
3305	I 3
3306	I 6
3307	K 9
3308	C11
3310	K 4
3311	L 4
3312	J 6
3313	J 6
3314	I 5
3315	J 6
3316	I 5
3317	K 6
3318	K10
3319	L 3
3320	L 3
3321	K 6
5251	B 2
5253	B 6
5254	E 6
6300	F 8
6301	H 9
6302	I 9
6303	N 9
6304	N 9
6305	N10
6306	N10
6307	L 9
6308	J 4
6309	I 6
6311	L 4
6312	L 4
6313	K 3
6314	L10
6315	L 9
6317	K 9
6318	L 3
6320	D 2
7300	I 7
7301	K 7
7302	J 6
7303	I 5
7304	H 4
7306	K 4
CC 1	I13
CC 10	I12
CC 11	I12
CC 12	I12
CC 13	I12
CC 14	M12
CC 15	F12
CC 16	F12
CC 17	E12
CC 2	I13
CC 3	H13
CC 4	G13
CC 5	G13
CC 6	F13
CC 7	E13
CC 8	H12
CC 9	H12

IC 7251 VOLTAGES

Pin No	FW20	FW30
1	-0.1V	-0.1V
2	-0.1V	-0.1V
3	0V	0V
4	-13.4V	-18.5V
5	-1.2V	-1.0V
6	0V	0V
7	-15.5V	-21.3V
8	-16.0V	-22.0V
9	-16.2V	-22.1V
10	0V	0V
11	16.4V	22.1V
12	15.3V	21.0V
13	0V	0V
14	-16.2V	-22.1V
15	-1.2V	-1.0V
16	0V	0V
17	-0.1V	-0.1V
18	-0.1V	-0.1V

TRANSISTOR VOLTAGE

Pin No	ITEM NO					
	7300	7301	7302	7303	7304	7306
e	21.5V	0V	0V	6.7V	13.0V	-30.0V
b	20.8V	0.6V	0V	6.2V	12.3V	-29.2V
c	14.0V	20.6V	0.9V	1.3V	21.5V	-47.2V

NOTE FOR ITEMS MARKED @

ITEMS	FW20	FW30	FW40
7251	STK4112	-	STK4132
6300	D3SB	D5SB	D5SB
2300 2301	3300u /25V	3300u/35V	
1251 1252	1.75A	2.0A	2.5A
3251 3252	22k	10k	3k3
2255 2256	100pF	270pF	680pF
2302	2200uF		3300uF

Item Marked *	FW20		FW30		FW40		
	All versions except /37	/37	All versions except /37	/37	Other version	/33	/37
1301	2A	3.15A	3.15A	5A	4A	4A	5A
1302							
1303	1A	1.25A	1A	1.25A		1A	1.25A
1304							
1305	0.63A	1.25A	0.63A	1.25A	0.63A	0.63A	1.25A
1306							
1307	-	2A	-	2A	-	1.6A	2A
1308	0.63A	1.25A	0.63A	1.25A	0.63A	0.63A	1.25A
1309							

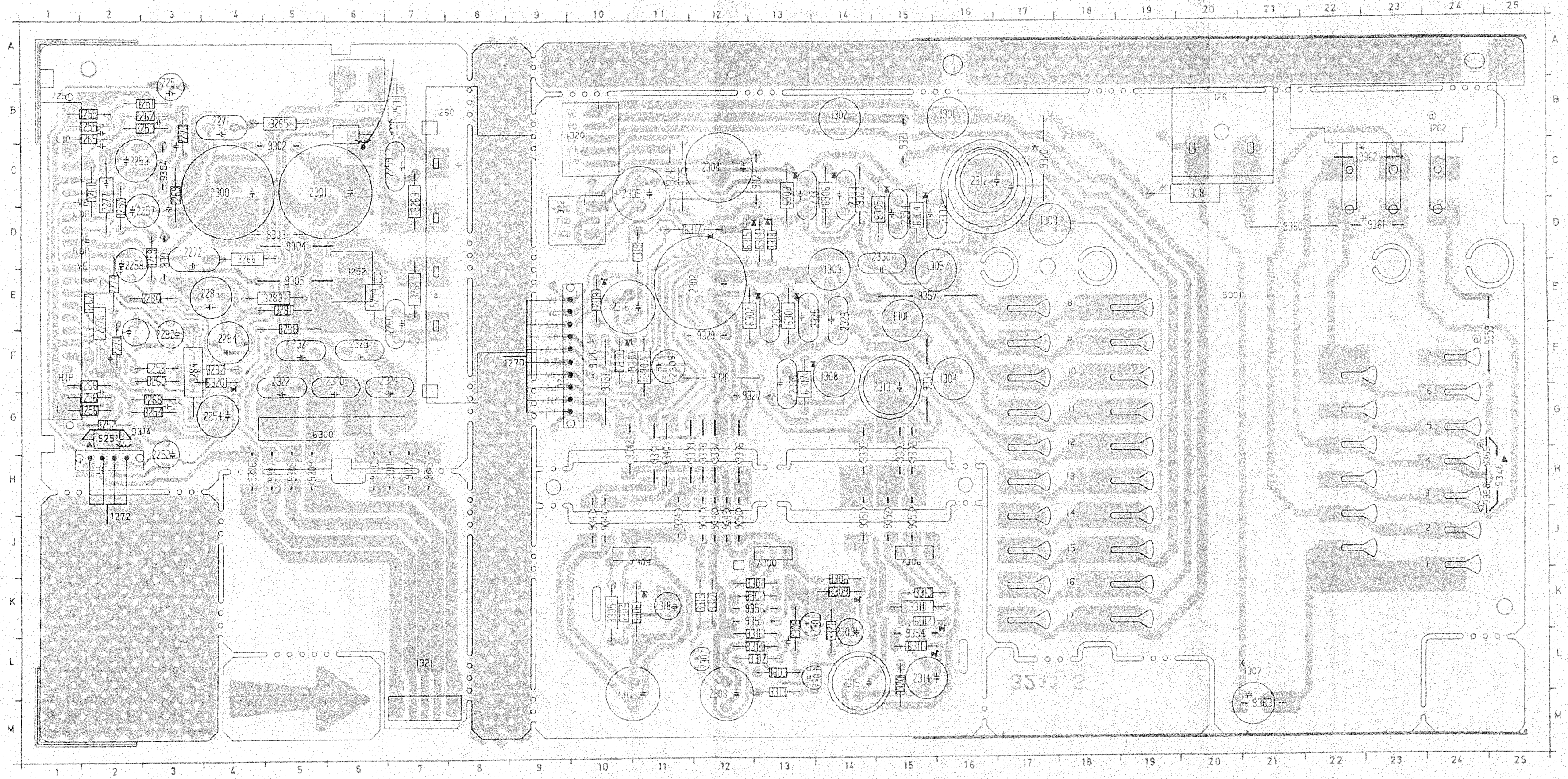
* NOT FOR /37

POWER BOARD COMPONENT LAYOUT

031	H2	1262	B24	1307	L21	2252	G3	2259	C7	2270	F2	2277	C3	2303	K14	2313	F15	2321	F5
032	G9	1301	B16	1308	F14	2253	C2	2260	E7	2271	B4	2282	F3	2304	C12	2314	L15	2322	F5
033	F9	1302	B14	1309	D17	2254	G4	2265	B2	2272	D3	2284	F4	2305	C11	2315	L14	2323	F6
1251	B6	1303	E14	1320	B10	2255	B2	2266	G2	2273	B3	2286	E4	2306	K13	2316	E10	2324	F7
1252	E6	1304	F16	1321	L7	2256	G2	2267	B3	2274	E2	2300	C4	2308	L12	2317	K10	2325	E13
1260	B7	1305	E15	1322	D9	2257	D2	2268	G3			2301	C5	2309	F11	2318	K11	2326	E13
1261	B20	1306	E15	2251	A3	2258	E2	2269	C3	2276	E2	2302	E12	2312	C16	2320	F6	2329	E14

2330	D15	3252	G2	3259	D3	3266	D4	3286	E5	3307	F11	3314	L13	6300	G5	6307	F13	6315	D12
2331	C13	3253	B3	3260	F3	3280	E3	3301	K13	3308	C20	3315	K12	6301	E13	6308	K11	6317	D12
2332	D16	3254	G3	3261	C2	3281	E5	3302	K13			3316	L13	6302	E12	6309	K14	6318	E10
2333	C14	3255	B2	3262	E2	3282	F4	3303	L13	3310	K15	3318	D13	6303	C13	6311	L15	7251	B1
2334	D15	3256	G2	3263	C7	3283	E5	3304	K10	3311	K15	3319	D11	6304	D15	6312	K15	7300	J13
2335	F13	3257	D2	3264	E7	3284	E3	3305	K10	3312	L13	5001	E20	6305	D15	6313	F10	7301	K14
3251	B3	3258	F3	3265	B5			3306	K14	3313	L13	5251	G2	6306	C14	6314	D13	7302	L12

7303	L14	9305	E5	9312	H7	9324	C11	9331	F10	9338	G12	9345	J11	9352	J15	9359	F25	1270	F8
7304	J11	9306	H4	9313	H7	9325	C11	9332	G15	9339	G11	9346	H25	9353	J15	9360	D21	1272	J2
7306	J15	9307	H5	9314	G2	9326	F10	9333	G15	9340	G11	9347	J12	9354	K15	9361	D23	1273	A7
9301	D3	9308	H5	9320	C17	9327	G12	9334	F15	9341	G11	9348	J12	9355	K13	9362	C23		
9302	C5	9309	H5	9321	C15	9328	F12	9335	H14	9342	G11	9349	J12	9356	K13	9363	M21	3317	K12
9303	D5	9310	H6	9322	C14	9329	F12	9336	G12	9343	J10	9350	J12	9357	E15	9364	C2	3320	L15
9304	D5	9311	H7	9323	C12	9330	F11	9337	G12	9344	J10	9351	J14	9358	H25	9365	H24	3321	L13


1
2
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9
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11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
A
B
C
D
E
F
G
H
J
K
L
M
1251
1252
1260
1261
1262
1270
1272
1301
1302
1303
1304
1305
1306
1307
1308
1309
1321
2300
2301
2302
2304
2305
2312
2313
2316
2317
2308
2315
2314
5001
5251
6300
9302
9303
9304
9305
9327
9328
9329
9357
9360
9361
9362
9363

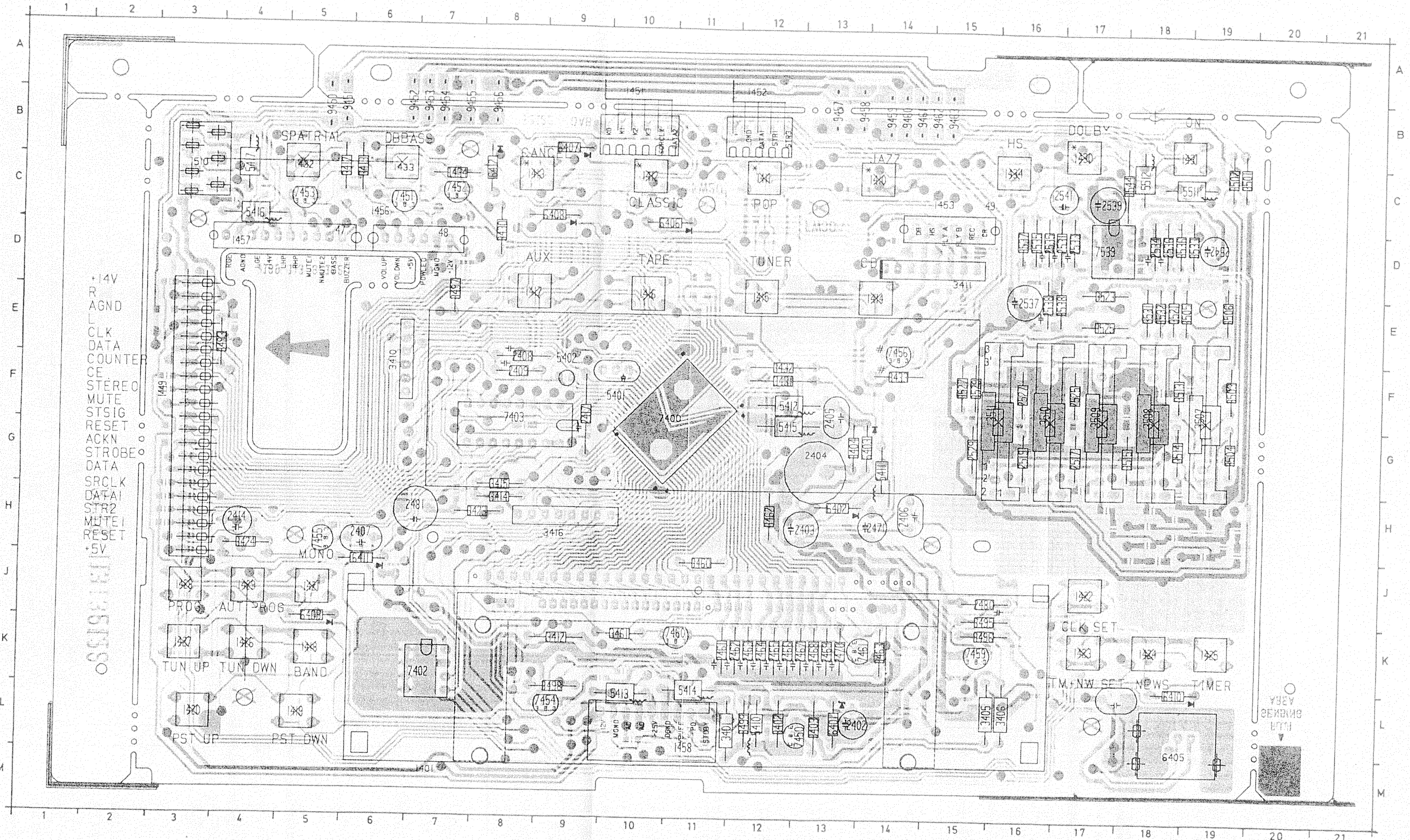
5252	B6
5253	B7
5254	E6
6320	F4

NOTE :

▲ FOR -/20 ONLY
@ FOR -/21 AND -/33 ONLY
▽ FOR -/25 AND -/30 ONLY
✱ FOR -/37 ONLY
⊕ FOR -/33 ONLY

FRONT BOARD COMPONENT LAYOUT

047	D5	1415	E12	1424	K18	1433	C6	1510	C3	2410	G6	2466	K12	2519	G16	2537	E16	3405	L16	3417	C5	3461	K10	3501	C19	3510	F16	3529	F15	5401	F10	5417	C4	6408	C9	7451	C6	7539	D17	9458	B13
048	D7	1416	E10	1425	K19	1434	C16	2402	L13			2467	K13	2525	F17	2538	E16	3406	L16	3423	H7	3462	H12	3502	C19	3511	F16	3531	E18	5402	F9	5511	C18	6409	J5	7452	C7	9450	B5	9459	B14
049	D15	1417	E8	1426	K4	1449	F3	2403	H13	2414	H4	2468	K13	2527	F16	2539	C17	3410	F6	3424	H4	3463	K14	3503	F19	3513	F18	3532	E18	5410	L12	5512	C18	6410	L18	7453	C5	9451	B5	9460	B14
1401	M7	1418	K5	1427	K3	1451	A10	2404	G13	2417	F9	2469	K13	2529	G15	2541	C17	3411	D15	3430	D8	3493	E4	3504	G19	3514	G18	3533	D19	5411	G14	6401	L13	6411	J6	7454	L9	9452	B6	9461	B14
1410	C14	1419	L5	1428	J3	1452	A12	2405	F12	2461	K11	2470	K13	2531	D17	2542	D19	3412	K9	3431	F12	3495	J15	3505	E19	3515	H18	3535	D16	5412	F13	6402	H13	6412	C8	7455	H5	9453	B7	9462	B15
1411	C12	1420	L3	1429	J4	1453	C15	2406	H14	2462	K12	2471	H14	2533	D17	3401	L11	3413	C6	3432	F12	3496	K15	3506	E19	3521	E18	3536	D19	5413	L10	6403	G14	7400	F10	7456	E14	9454	B7	9463	B15
1412	C10	1421	J5	1430	B17	1456	C6	2407	H6	2463	K12	2480	J15	2534	D18	3402	L12	3414	H8	3433	F14	3497	E7	3507	F19	3523	D17	3537	D16	5414	L11	6405	L18	7402	K7	7459	K15	9455	B7	9499	F9
1413	C8	1422	J17	1431	B19	1457	C3	2408	F8	2464	K12	2481	H7	2535	D16	3403	L13	3415	G9	3434	C7	3498	L9	3508	F18	3525	E17	3538	E17	5415	G13	6406	C10	7403	F8	7460	K11	9456	B8		
1414	E14	1423	K17	1432	C5	1458	L11	2409	F8	2465	K12	2517	G17	2536	D18	3404	G13	3416	H9	3460	J11	3499	L12	3509	F17	3527	F15	3544	C18	5416	C4	6407	B9	7450	L13	7461	K14	9457	B13		

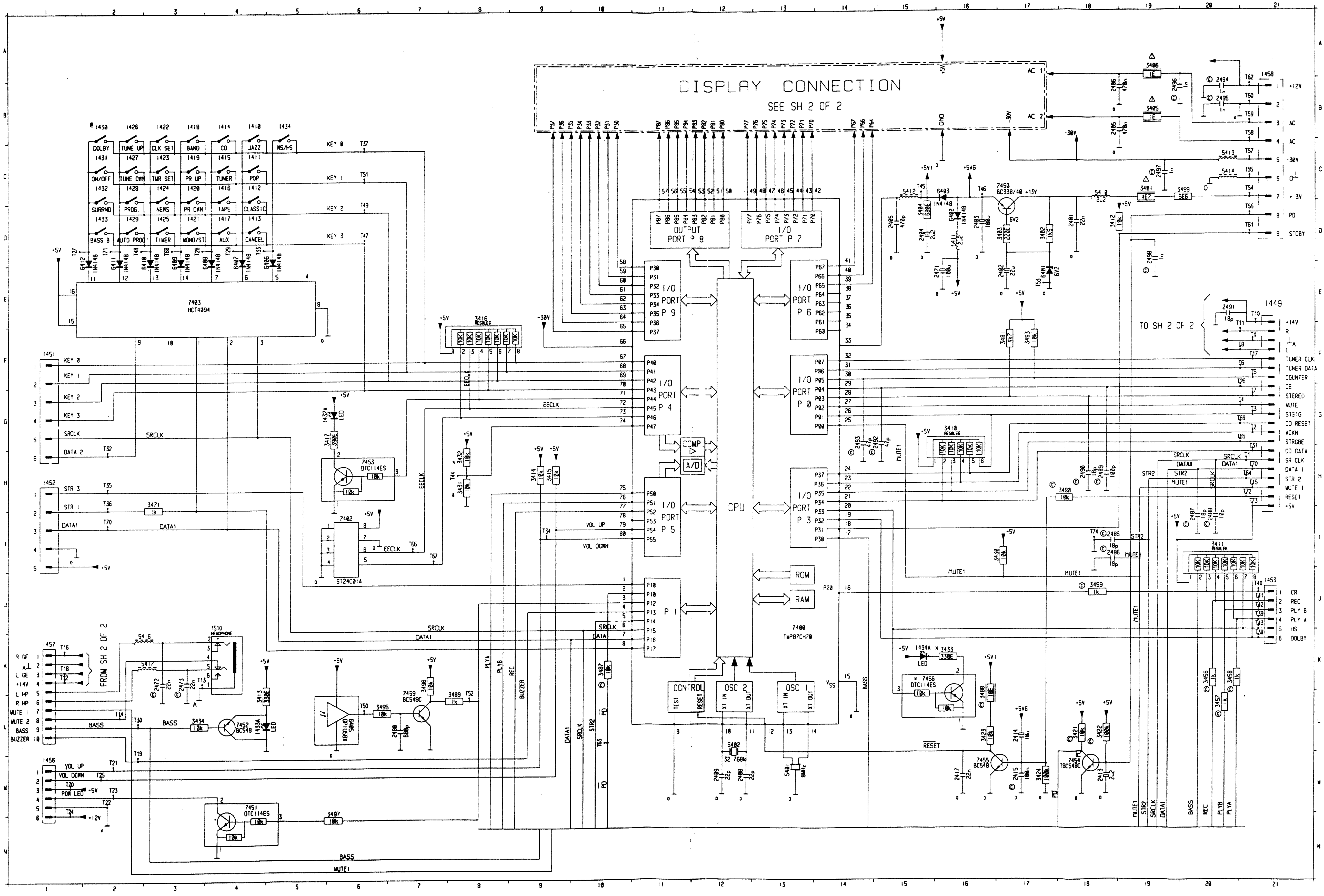


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H J K L M
SPATRIAL
DBBASS
CANCEL
CLASSIC
POP
JAZZ
HS
DOLBY
ON
AUX
TAPE
TUNER
CD
+14V
R
AGND
L
CLK
DATA
COUNTER
CE
STEREO
MUTE
STSIG
RESET
ACKN
STROBE
DATA
SRCLK
DATAI
STR2
MUTEI
RESET
+5V
MONO
PROG
AUTOPROG
TUN UP
TUN DWN
BAND
PST UP
PST DWN
CLK SET
TM+NW SET
NEWS
TIMER
7400
7402
7403
2404
6405

NOTE :

* NOT FOR FW20
# FOR FW20 ONLY

FRONT CIRCUIT I


DISPLAY CONNECTION
SEE SH 2 OF 2
CPU
7400
TMP87CH70
7403
HCT4094
7402
ST24C01A
I/O PORT P 9
I/O PORT P 4
I/O PORT P 5
P 1
OUTPUT PORT P 8
I/O PORT P 7
I/O PORT P 6
I/O PORT P 0
I/O PORT P 3
ROM
RAM
COMP
A/D
CONTROL
TEST
RESET
OSC 2
OSC 1
XT IN
XT OUT
VSS
DOLBY
TUNE UP
CLK SET
BAND
CD
JAZZ
MS/HS
ON/OFF
TUNE DWN
TMR SET
PR UP
TUNER
POP
SURRND
PROG
NEWS
PR DWN
TAPE
CLASSIC
BASS B
AUTO PROG
TIMER
MONO/ST
AUX
CANCEL
KEY 0
KEY 1
KEY 2
KEY 3
SRCLK
DATA 2
STR 3
STR 1
DATA1
EECLK
VOL UP
VOL DOWN
POR LED
BASS
BUZZER
MUTE 1
MUTE 2
R GE
L GE
+14V
L HP
R HP
HEADPHONE
FROM SH 2 OF 2
TO SH 2 OF 2
TUNER CLK
TUNER DATA
COUNTER
CE
STEREO
MUTE
STSIG
CD RESET
ACKN
STROBE
CD DATA
SR CLK
DATA 1
STR 2
RESET
+5V
+12V
AC
-30V
+13V
PD
STDBY
CR
REC
PLY B
PLY A
HS
PLYA
PLYB
BC338/40
BC548
BC548C
DTC114ES
LED
1N4148
6V2
32.768k
8MHz

1410	B 4
1411	C 4
1412	C 4
1413	D 4
1414	B 4
1415	C 4
1416	C 4
1417	D 4
1418	B 3
1419	C 3
1420	C 3
1421	D 3
1422	B 3
1423	C 3
1424	C 3
1425	D 3
1426	B 2
1427	C 2
1428	C 2
1429	D 2
1430	B 2
1431	C 2
1432	C 2
1432A	G 5
1433	D 2
1433A	L 4
1434	B 5
1434A	K15
1449	G21
1449	F21
1449	F21
1449	F21
1449	G21
1449	G21
1449	H21
1449	H21
1449	H21
1449	H21
1449	H21
1449	I21
1449	G21
1449	G21
1449	G21
1449	G21
1449	F21
1449	F21
1449	F21
1449	F21
1449	H21
1451	F 1
1451	F 1
1451	G 1
1451	G 1
1451	G 1
1451	H 1
1452	H 1
1452	H 1
1452	I 1
1452	I 1
1452	I 1
1453	J21
1453	J21
1453	J21
1453	J21
1453	J21
1453	K21
1456	M 1
1456	M 1
1456	M 1
1456	M 1
1456	M 1
1456	M 1
1457	K 1
1457	K 1
1457	K 1
1457	K 1
1457	K 1
1457	L 1
1457	L 1
1457	L 1
1457	L 1
1457	L 1
1458	A21
1458	B21
1458	B21
1458	C21
1458	C21
1458	C21
1458	C21
1458	C21
1458	D21
1510	K 4
2401	D18
2402	E17
2403	D15
2404	D15
2405	B18
2405	D15
2406	B18
2408	M12
2409	M12
2410	M11
2413	M18
2414	L17
2415	M17
2417	M16
2471	E15
2472	K 3
2473	K 3
2480	L 7
2485	I18
2486	I18
2487	I20
2488	I20
2489	H18
2490	H18
2491	E20
2492	G14
2493	G14
2494	B20
2495	B20
2496	B19
2497	C19
2498	D19
3401	C19
3402	D17
3403	D16
3404	D15
3405	B19
3406	A19
3410	G16
3411	I20
3412	D18
3413	L 4
3414	H 9
3415	H 9
3416	E 8
3417	G 5
3421	L18
3422	L18
3423	L16
3424	M17
3430	I16
3431	H 8
3432	H 8
3433	K16
3434	L 3
3456	K20
3457	L20
3458	K20
3459	J18
3481	F17
3487	K10
3488	L16
3489	L 8
3471	H 3
3490	H18
3493	F17
3495	L 6
3496	K 7
3497	M 6
3499	C19
5401	M13
5402	L12
5410	C18
5411	D16
5412	C15
5413	C20
5414	C20
5416	K 2
5417	K 2
6401	E17
6402	D16
6403	C15
6405	L 6
6406	D 4
6407	D 4
6408	D 3
6409	D 3
6410	D 2
6411	D 2
6412	D 1
7400	J13
7402	I 6
7403	E 3
7450	C15
7451	M 4
7452	L 4
7453	H 6
7454	M18
7455	M16
7456	K15
7459	L 7

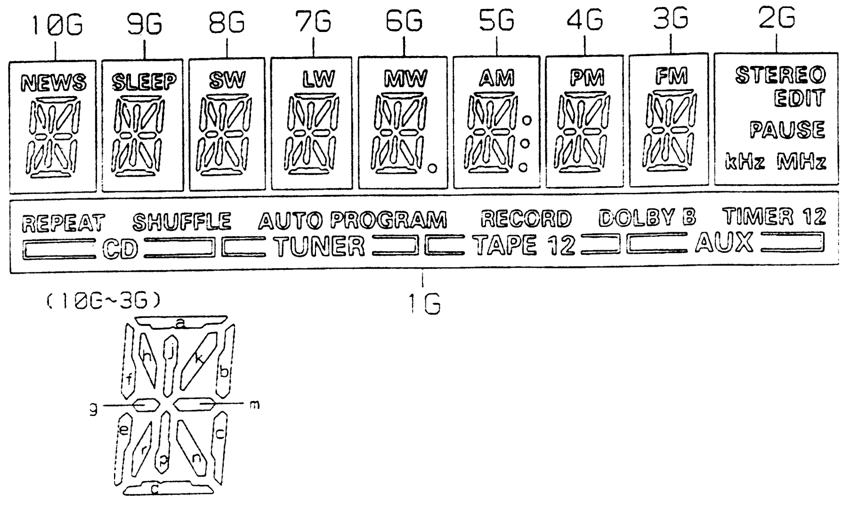
NOTE
* FOR FW20 ONLY
# NOT FOR FW20 FAMILY
@ FOR FW30 FAMILY ONLY

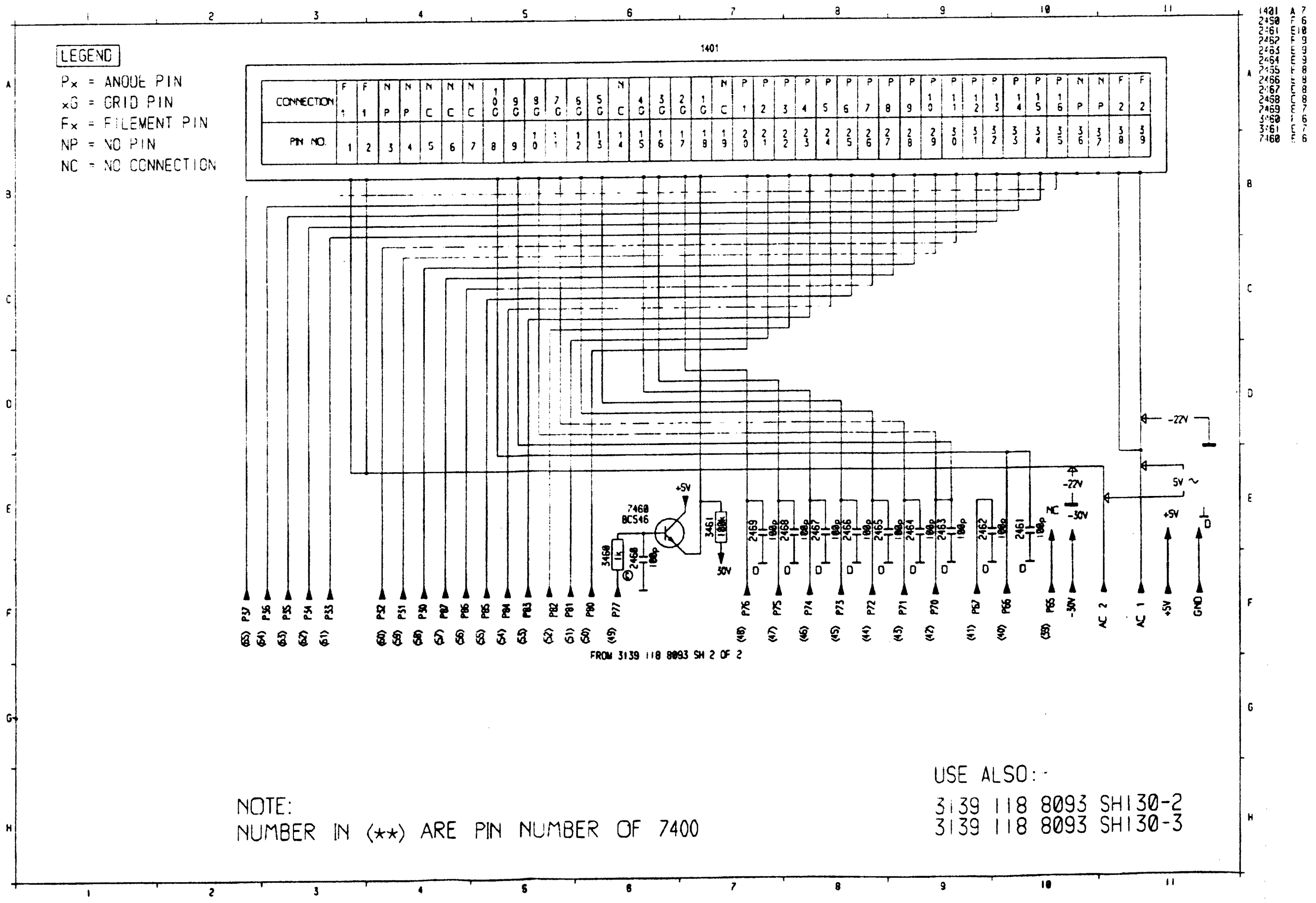
FRONT CIRCUIT II

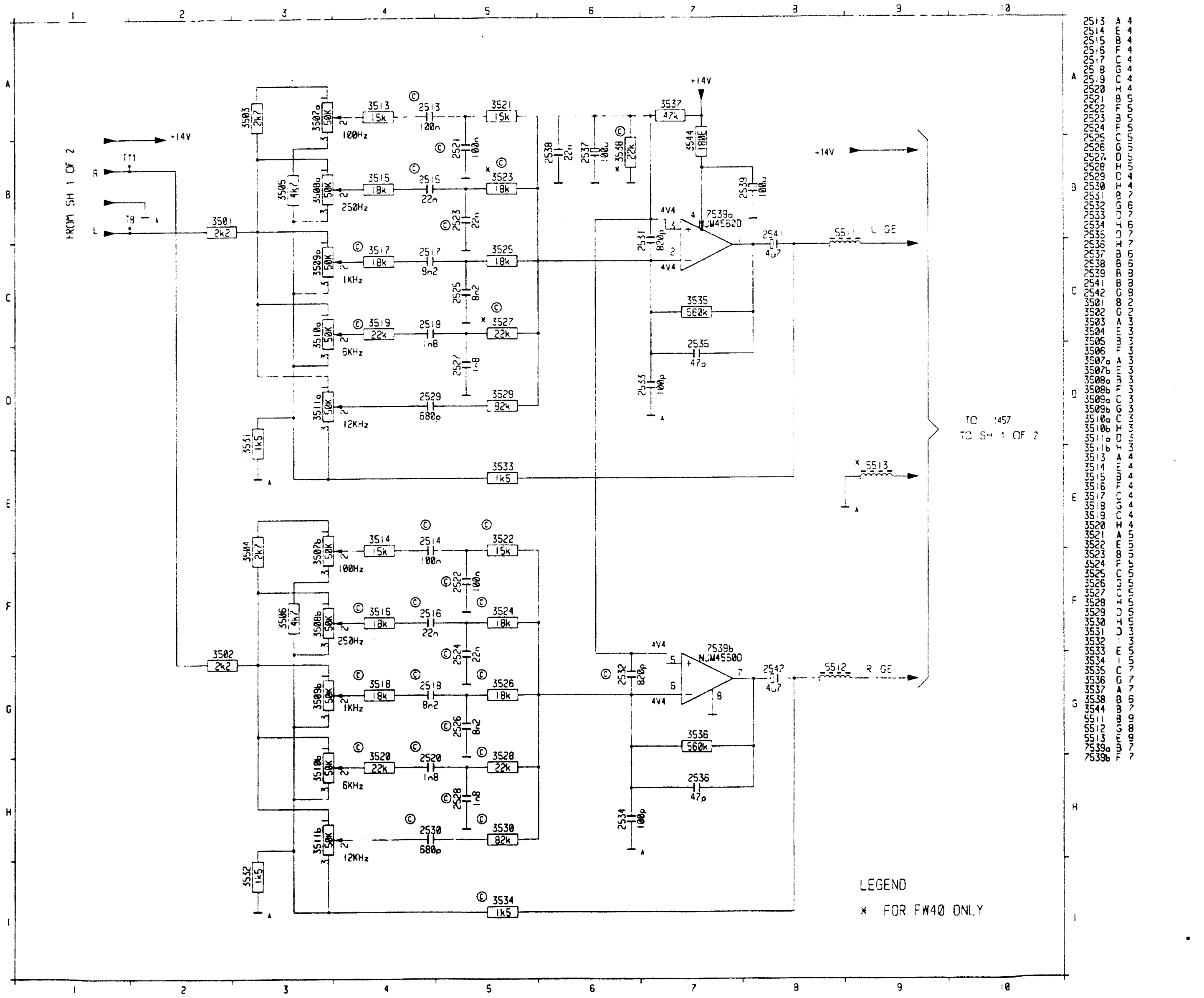
ANODE CONNECTION

	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	a	a	a	a	kHz	REPEAT
P2	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	MHz	SHUFFLE
P3	k	k	k	k	k	k	k	k	PAUSE	AUTO
P4	h	h	h	h	h	h	h	h	EDIT	PROGRAM
P5	b	b	b	b	b	b	b	b	STEREO	RECORD
P6	f	f	f	f	f	f	f	f	–	DOLBY B
P7	m	m	m	m	m	m	m	m	–	TIMER
P8	g	g	g	g	g	g	g	g	–	(TIMER) 1
P9	c	c	c	c	c	c	c	c	–	(TIMER) 2
P10	e	e	e	e	e	e	e	e	–	[AUX]
P11	r	r	r	r	r	r	r	r	–	[TAPE]
P12	n	n	n	n	n	n	n	n	–	[TAPE] 1
P13	d	d	d	d	d	d	d	d	–	[TAPE] 2
P14	NEWS	SLEEP	SW	LW	MW	AM	PM	FM	–	[TUNER]
P15	–	–	–	–	–	• • °	–	–	–	[CD]
P16	–	–	–	–	°	° •	–	–	–	–

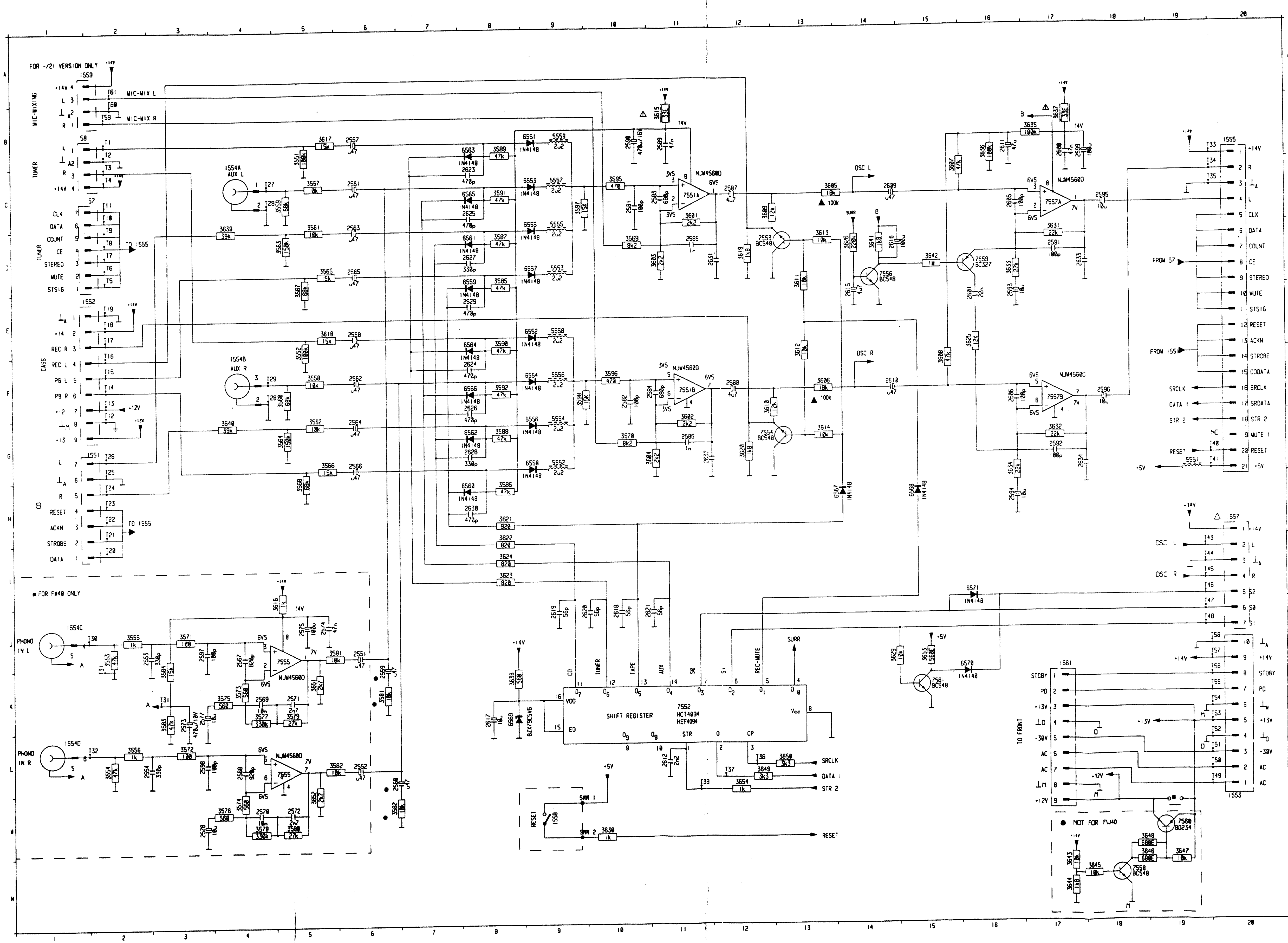
GRID ASSIGNMENT


10G
9G
8G
7G
6G
5G
4G
3G
2G
NEWS
SLEEP
SW
LW
MW
AM
PM
FM
STEREO
EDIT
PAUSE
kHz MHz
REPEAT
SHUFFLE
AUTO PROGRAM
RECORD
DOLBY B
TIMER 12
CD
TUNER
TAPE 12
AUX
1G
(10G~3G)
a
b
g
m
c


LEGEND
Px = ANODE PIN
xG = GRID PIN
Fx = FILEMENT PIN
NP = NO PIN
NC = NO CONNECTION
1401
CONNECTION
PIN NO
7460
BC546
-22V
5V ~
+5V
GND
AC 1
AC 2
FROM 3139 118 8093 SH 2 OF 2
NOTE:
NUMBER IN (**) ARE PIN NUMBER OF 7400
USE ALSO:-
3139 118 8093 SH130-2
3139 118 8093 SH130-3


FROM SH 1 OF 2
+14V
L
R
3501
2k2
3502
2k2
100Hz
250Hz
1KHz
6KHz
12KHz
7539a
NJM4558D
7539b
NJM4558D
5511
L GE
5512
R GE
TO 1457
TO SH 1 OF 2
5513
LEGEND
× FOR FW40 ONLY

SELECTOR CIRCUIT DIAGRAM


FOR -/21 VERSION ONLY
MIC-MIXING
MIC-MIX L
MIC-MIX R
TUNER
CLK
DATA
COUNT
CE
STEREO
MUTE
STSIG
TO 1555
CASS
REC R
REC L
PB L
PB R
CD
RESET
ACKN
STROBE
DATA
1554A AUX L
1554B AUX R
1554C PHONO IN L
1554D PHONO IN R
■ FOR FW40 ONLY
NJM4560D
7551A
7551B
7555
7557A
7557B
OSC L
OSC R
SURR
REC-MUTE
SHIFT REGISTER
7552 HCT4094 HEF4094
SRCLK
DATA 1
STR 2
RESET
SWW 1
SWW 2
BZX79C5V6
FROM S7
FROM 1555
TO FRONT
STDBY
PD
+13V
-30V
AC
● NOT FOR FW40
BD234
BC548
BC327
1N4148
1555
1557
1561
1553

1551	G 1
1552	E 1
1553	M20
1554A	B 4
1554B	E 4
1554C	J 1
1554D	L 1
1555	B20
1557	H20
1558	M 9
1559	A 1
1561	K17
2551	J 6
2552	L 6
2553	J 2
2554	L 2
2557	B 6
2558	E 6
2559	K 6
2560	L 6
2561	C 6
2562	F 6
2563	C 6
2564	G 6
2565	D 6
2566	G 6
2567	J 4
2568	L 4
2569	K 4
2570	M 4
2571	K 5
2572	M 5
2573	K 3
2574	J 5
2575	J 5
2577	K 3
2578	M 3
2581	C10
2582	F10
2583	C11
2584	F11
2585	D11
2586	G11
2587	C12
2588	F12
2589	B11
2590	B10
2591	D17
2592	G17
2593	E16
2594	H16
2595	C18
2596	F18
2597	J 3
2598	L 3
2599	B17
2600	B17
2601	E16
2605	C16
2606	F16
2609	C14
2610	F14
2611	B16
2612	L11
2615	E14
2616	D14
2617	K 8
2618	J10
2619	J 9
2620	J 9
2621	J10
2623	C 8
2624	F 8
2625	C 8
2626	F 8
2627	D 8
2628	G 8
2629	E 8
2630	H 8
2631	D12
2632	G11
2633	D17
2634	G17
3551	B 5
3552	E 5
3553	J 2
3554	L 2
3555	J 2
3556	L 2
3557	C 5
3558	F 5
3559	C 5
3560	F 5
3561	C 5
3562	G 5
3563	D 5
3564	G 5
3565	D 5
3566	G 5
3567	D 5
3568	H 5
3569	D10
3570	G10
3571	J 3
3572	L 3
3573	K 4
3574	M 4
3575	K 4
3576	M 4
3577	K 4
3578	M 4
3579	K 5
3580	M 5
3581	K 6
3581	J 5
3582	L 5
3582	M 6
3583	K 3
3584	J 3
3585	D 8
3586	H 8
3587	D 8
3588	G 8
3589	B 8
3590	E 8
3591	C 8
3592	F 8
3595	C10
3596	F10
3597	C 9
3598	F 9
3601	C11
3602	G11
3603	D11
3604	G11
3605	C13
3606	F13
3607	C15
3608	F15
3609	C12
3610	F12
3611	D13
3612	E13
3613	D13
3614	G13
3615	B11
3616	I 5
3617	B 5
3618	E 5
3619	D12
3620	G12
3621	H 8
3622	H 8
3623	I 8
3624	I 8
3625	E16
3626	D14
3629	J14
3630	M10
3631	D17
3632	G17
3633	D16
3634	G16
3635	B17
3636	B16
3637	B17
3638	K 9
3639	C 4
3640	G 4
3641	D14
3642	D15
3643	N17
3644	N17
3645	N18
3646	N18
3647	N19
3648	M18
3649	L12
3650	L13
3651	K 5
3652	M 5
3653	J15
3654	L12
5551	G19
5552	G 9
5553	D 9
5554	G 9
5555	C 9
5556	F 9
5557	C 9
5558	E 9
5559	B 9
57	C 2
58	B 1
6551	B 9
6552	E 9
6553	C 9
6554	F 9
6555	C 9
6556	G 9
6557	D 9
6558	G 9
6559	D 8
6560	H 8
6561	D 8
6562	G 8
6563	B 8
6564	E 8
6565	C 8
6566	F 8
6567	H14
6568	H15
6569	K 8
6570	K16
6571	I16
7551A	C11
7551B	F11
7552	K11
7553	D12
7554	G12
7555	J 5
7555	L 5
7556	D14
7557A	C17
7557B	F17
7558	N18
7559	D16
7560	M19
7561	K15
SWW 1	M 9
SWW 2	M 9

▲ FOR FW20 ONLY
△ NOT FOR FW20
■ FOR FW40 ONLY
● NOT FOR FW40

COMBI CIRCUIT DIAGRAM

0	B 4
1	B 1
10	C 4
11	C 5
12	D 1
13	E 1
14	E 1
15	E 1
1530	B 1
1530	B 1
1530	B 1
1530	C 1
1530	C 1
1530	D 1
1531	D 1
1531	E 1
1531	E 1
1531	E 1
1531	F 1
1531	F 1
1531	F 1
1531	G 1
1531	G 1
1531	G 1
1532	G11
1532	F11
1532	E11
1532	E11
1561	F22
1561	G22
1561	G22
1561	H22
1561	H22
1561	I22
1561	I22
16	F 1
17	F 1
18	F 1
19	F 1
1900	J 6
1901	J 7
1902	I 8
1903	J 7
1904	J 7
1905	I 7
1906	J 8
1907	I 6
1908	J 6
1909	I 7
1910	I 7
1911	I 6
1912	J 9
1913	I 9
1914	I 9
1915	I 9
1916	J 9
1917	I 9
1918	I 9
1919	I10
1920	J10
1921	J10
1922	J 9
1923	J 7
1923led	J 3
1924	I 8
1924led	J 4
1925	I 7
1925led	J 4
1926	J 8
1926led	J 5
1927	I10
1927	I11
1927	J11
1927	K11
1927	K11
1927	K11
1928	L10
1928	L11
1928	M11
1928	M11
1928	M11
1929	I11
1929	I12
1929	J12
1929	J12
1929	J12
1930	K11
1930	L11
1930	L11
1930	L11
1930	M11
1930	M12
2	B 1
20	G 1
200	B 2
21	G 2
22	G 2
23	E 5
24	G 6
25	E 7
2500	C19
2501	C20
2502	C21
2503	C14
2504	E21
2505	D21
2506	E16
2507	E19
2508	D15
2509	D18
2510	E15
2511	E19
2512	D17
2513	D20
2514	D15
2515	D19
2516	D16
2517	D19
2518	C 7
2519	D 6
2520	B 8
2521	C 8
2522	C 9
2523	C 9
2524	B10
2525	D10
2526	A 7
2527	A 8
2528	B 8
2529	D 8
2530	F 3
2531	G 3
2532	F 7
2533	H 4
2534	B 8
2535	D 8
2536	D 4
2537	E 5
2538	E 9
2539	A 9
2544	B 4
2553	E 7
2554	D17
2555	D18
2559	K21
2560	G15
2561	J15
2562	H16
2563	L16
2564	H16
2565	K16
2566	G17
2567	J17
2568	I18
2569	M18
2570	M20
2571	M21
2572	K21
2573	M15
2574	I15
2575	I21
2576	H21
26	D 6
27	B 7
28	A 8
29	B 8
2900	L 1
2902	M 7
2904	M 3
31	E 8
32	D 9
33	E 8
34	E10
35	E10
3500	C15
3503	E20
3504	E16
3505	E19
3506	E16
3507	D17
3508	D14
3509	C20
3510	C19
3511	B20
3512	C18
3513	D18
3514	B 7
3515	D 7
3516	A 7
3517	A 6
3518	B 8
3519	C 8
3520	B 9
3521	C 9
3522	B10
3523	D10
3524	A10
3526	B11
3527	D11
3528	A 8
3529	A 8
3530	F 2
3531	G 3
3532	F 3
3533	G 3
3534	C 2
3534L	G 3
3534R	F 3
3535	E 8
3536	E 5
3537	G 5
3538	F 5
3539	G 5
3540	F 7
3541	F 7
3542	F 8
3543	G 8
3544	C 2
3545	D 2
3546	B 3
3547	B 5
3548	C18
3549	A 4
3550	A 4
3551	A 4
3552	B 2
3553	E 8
3554	D 8
3555	E 7
3556	D 3
3559	J21
3560	H14
3561	L14
3562	H15
3563	K15
3564	G15
3565	K15
3566	G15
3567	J15
3568	G16
3569	J16
3570	L21
3571	L21
3572	I15
3573	M15
3574	I16
3575	M16
3576	G20
3577	G20
3578	L19
3579	I21
3580	K21
3581	L21
3582	L18
3583	G20
3584	E 4
3585	E 5
3586	F 4
3587	G 4
3588	D10
3589	D 5
3590	G 2
3591	E 6
3592	A 5
3593	M16
3594	I16
3595	H20
3596	H20
3597	I20
3598	I20
36	F10
37	G10
38	C14
39	C14
3900	I 4
3901	I 4
3902	I 5
3903	I 3
3904	L 1
4	C 1
40	C14
41	D14
42	C15
43	D19
44	C20
45	C22
46	C22
47	D22
48	E22
49	G22
5	C 1
50	C22
50	G22
50	D22
50	D22
50	E22
51	G22
51	C 4
51	C 4
52	H22
52	I11
52	I11
52	J11
52	K11
52	K11
52	K11
53	H22
53	L11
53	L11
53	M11
53	M11
53	M11
54	I21
55	I22
5520	B11
5521	D11
56	J21
57	J20
58	K21
59	L20
6	D 1
60	L20
61	L18
62	K19
63	K14
64	J14
65	H14
6544	C 3
6545	C 5
6546	D 5
6547	E 3
6548	E10
6549	E 9
6550	E 5
6551	E 4
66	G14
67	I10
68	I10
69	J10
6900	K 8
6901	K 7
6902	K 7
6903	K 9
6904	K 9
6905	K 8
6906	K 6
70	J10
71	K10
72	K10
73	L10
74	L10
75	L10
7501A	C16
7501B	D20
7516L	D 9
7516R	B 9
7530	F 3
7531	G 3
7532	F 5
7533	G 5
7534	F 9
7535	G 9
7544	B 3
7545	B 5
7546	C 3
7547	C 5
7548	C 3
7549	C 5
7553	E 9
7560	G15
7561	K15
7562	M18
7564	G16
7565	J16
76	M10
77	M10
78	K 9
79	K 9
7900	L 7
7901	L 3
8	B 3
80	K 8
81	K 8
82	K 7
83	K 7
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86	J 4
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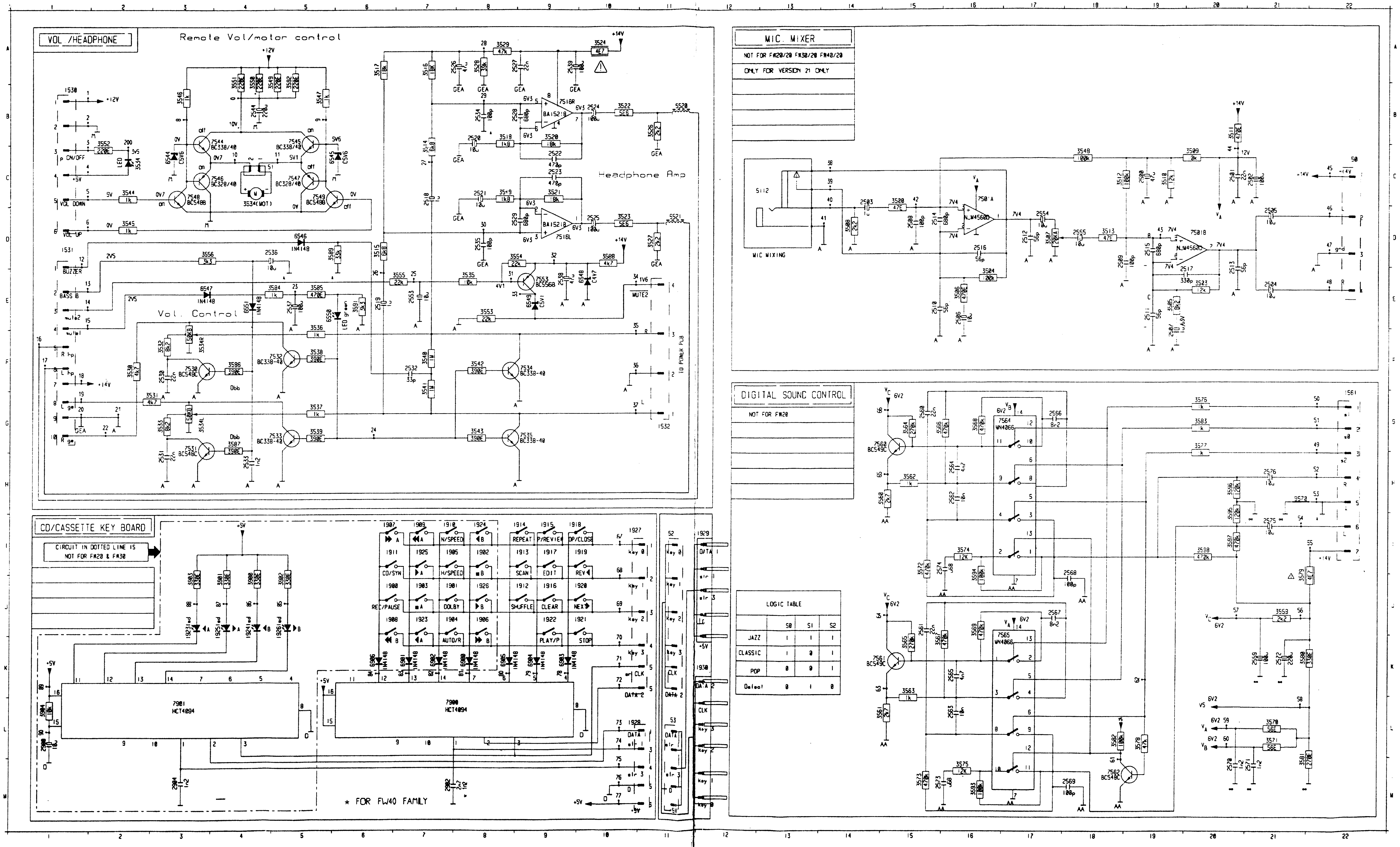
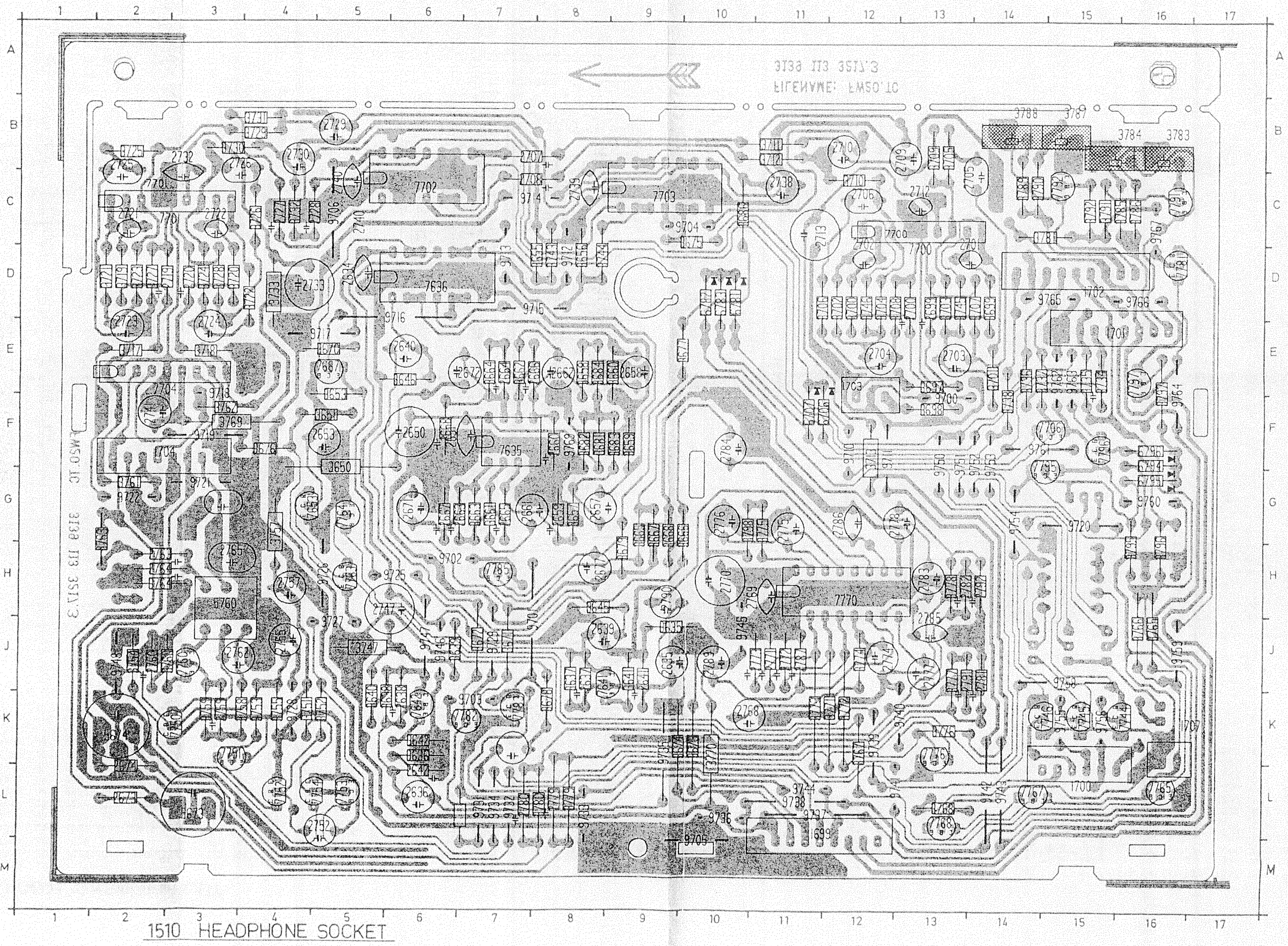
88	J 3
89	K 1
9	B 5
90	L 1
9570	H21



LOGIC TABLE			
	S0	S1	S2
JAZZ	1	1	1
CLASSIC	1	0	1
POP	0	0	1
Defeat	0	1	0

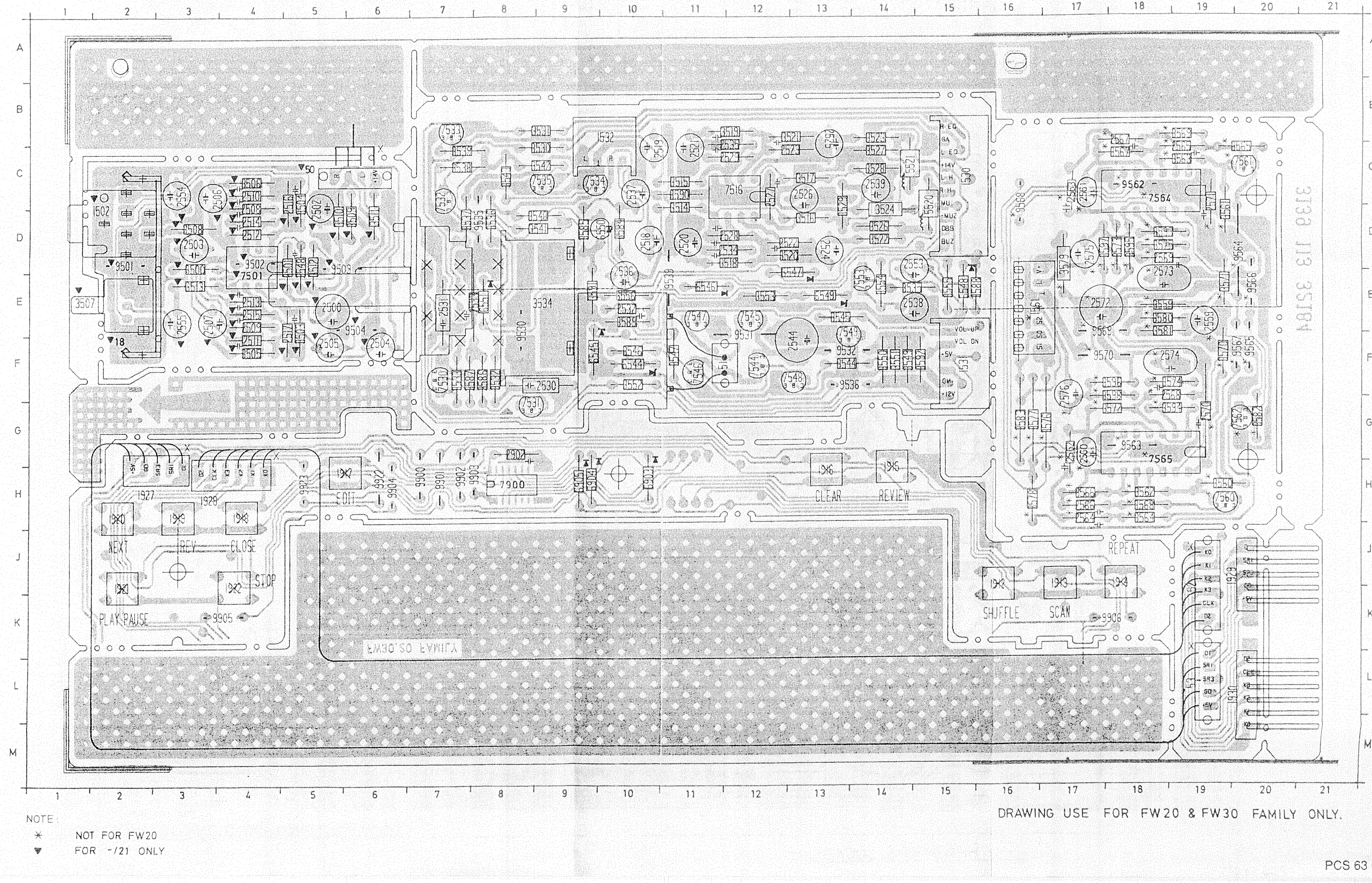
TAPE CORE BOARD COMPONENT LAYOUT

1699	M11	2642	L6	2674	L2	2721	C2	2755	J4	2778	G12	.3638	K6	3663	G7	3684	E8	3712	B11	3733	D4			3774	J12			7642	K6	7752	L4	7795	F14	9719	F3	9738	L11	9758	J15
1700	L15	2650	F6	2677	H8	2722	C3	2757	H4	2779	L8	3639	J6	3664	E7	3686	C10	3713	F12	3734	E15	3757	H4	3775	G11	3795	H16	7653	G4	7753	L5	7796	F15	9720	G15	9739	K12	9759	J16
1701	E15	2653	F5	2699	D13	2723	E2	2759	K3	2780	L7	3640	K5	3665	G9	3697	E13	3717	E2	3735	E15	3758	K4	3776	K13	3796	H16	7667	E5	7754	L5	7797	E16	9721	G3	9740	K13	9760	G16
1702	D15	2657	G8	2700	D13	2724	E3	2760	J2	2781	J14	3641	J9	3666	G9	3698	F13	3718	E3	3736	E14	3759	K3	3777	J13	3797	F16	7700	C12	7760	J3	9700	F13	9722	G2	9741	L13	9761	F14
1703	E12	2658	E9	2701	C13	2725	C2	2762	J3	2782	H13	3642	K6	3667	G9	3699	D13	3719	D2	3737	E14	3760	J2	3778	H13	5673	L3	7701	C2	7763	H5	9701	J8			9742	L14	9762	E15
1704	F2	2659	G8	2702	D12	2726	C3	2763	H2	2783	H13	3645	H8	3668	G9	3700	D12	3720	D3	3738	E14	3761	G2	3779	L8	5674	K2	7702	C6	7764	G5	9702	H6	9725	H6	9743	L14	9763	E15
		2660	F8	2703	E13	2727	C4	2764	H2	2784	F10	3646	E6	3670	E5	3701	E14	3721	D2			3762	F3	3780	L8	5760	H3	7703	C9	7765	L16	9704	C9	9726	H5	9744	L11	9764	F16
1707	K17	2661	G7	2704	E12	2728	C4	2765	H3	2785	J13	3650	G5	3671	J7	3701	E14	3722	D4			3763	G1	3781	C14	6706	F11	7704	E2	7767	L14	9705	C10	9727	J5	9745	J10	9765	D15
		2662	E8	2705	C13	2729	B5	2768	K11	2786	G12	3652	F5	3672	J7	3702	D12	3723	D2			3764	H1	3783	B16	6707	F11	7706	F15	7768	L13	9706	C5	9728	K4	9746	J6	9766	D16
2631	F6	2663	G7	2706	C12	2730	B4	2769	H10	2787	J11	3653	F5	3673	K10	3703	D13	3724	D3	3743	D8	3765	J16	3784	B16					7770	H12	9710	F12	9729	J7	9747	J6	9767	C16
2634	D5	2664	E7	2707	B7	2732	B3	2770	H10	2788	G10	3655	D7	3674	K10	3704	D12	3725	B2	3744	D8	3766	J16	3785	C15					7776	K13	9711	F12	9730	J7	9750	G13		
2635	J9	2665	G7	2708	C7	2733	D4	2771	J11	2789	J10	3656	D8	3675	C9	3705	B13	3726	C4	3745	D13	3767	K12	3786	C16	6794	F16			7781	D16	9712	D8	9731	L7	9751	G13	9769	F8
2636	L6	2666	E7	2709	B13	2738	C11	2772	J11	2790	H9	3657	G8	3677	E10	3706	D12	3727	D2	3747	J5	3768	L13	3787	B15	6795	G16		K16	7782	K7	9713	D7	9732	L7	9752	G14	9748	F2
2637	J8	2667	G6	2710	B12	2739	C8	2773	J11	2791	J13	3658	E8	3678	K8	3707	D13	3728	D3	3751	K4	3769	F3	3788	B14	6796	F16	7744	K16	7783	K7	9714	C7	9733	L8	9753	G14		
2638	K6	2668	F6	2712	C13	2740	C5	2774	J12	2792	H14	3659	F9	3679	H9	3708	D12	3729	B4	3752	K5	3770	K10	3789	C14			7745	K15	7785	H7	9715	D7	9734	L7	9754	G14		
2639	J8	2671	G6	2713	C11	2741	F2	2775	G11	3635	J9	3660	E9	3680	F8	3709	B13	3730	B3	3753	K4	3771	K12	3790	C14	7635	F7	7746	K15	7791	C16	9716	E6	9735	K10	9755	K15		
2640	E6	2672	E7	2719	D2	2747	H5	2776	G10	3636	K6	3661	G7	3681	F8	3710	C12	3731	B4	3754	J2	3772	K12	3791	C15	7636	D6	7750	K3	7792	C15	9717	E5	9736	L10	9756	K15		
2641	J9	2673	L2	2720	D3	2752	L5	2777	J13	3637	J8	3662	E7	3683	F9	3711	B11	3732	C4	3755	K4	3773	K11	3792	C15	7641	J8	7751	K3			9718	F3	9737	L11				



COMBI BOARD COMPONENT LAYOUT

018	F2	1912	J16	1927	G3	2507	E3	2518	D10	2529	C12	2553	D14	2568	G19	3503	F5	3515	C11	3525	B14	3536	D8	3547	F11	3560	H19	3571	E19	3582	G20	3593	D18	6547	E13	7531	F8	7553	E14	9504	E5	9563	G18	9903	H8
050	C5	1913	J17	1928	G4	2508	D4	2519	C11	2530	F9	2554	C3	2569	D18	3504	C5	3516	D13	3526	D14	3537	D7	3547	E10	3561	C19	3572	G18	3583	G16	3594	G19	6548	E15	7532	C7	7560	H19	9530	F8	9564	D20	9904	H6
051	G11	1914	J18	1929	L20	2509	E4	2520	D11	2531	E7	2555	E3	2570	G19	3505	F4	3517	C13	3527	C14	3538	C7	3548	D5	3562	H18	3573	D18	3584	D10	3595	D18	6549	E13	7533	B7	7561	C20	9531	F12	9565	F20	9905	K4
052	J19	1915	H14	1930	L20	2510	C4	2521	C11	2532	E10	2560	G17	2571	D19	3506	C4	3517	D5	3528	C14	3539	C7	3549	F14	3563	C19	3574	F19	3585	D9	3596	F18	6550	D10	7534	C9	7562	G20	9532	F13	9566	E20		
053	M19	1916	H13	2500	E5	2511	F4	2522	D13	2533	E8	2561	C17	2572	E17	3507	E1	3518	D12	3529	C14	3540	D8	3550	F14	3564	H18	3575	D18	3586	F8	3597	D18	6561	E9	7535	C9	7564	C18			9567	F20	9922	H6
1501	B6	1917	G5	2501	D5	2512	D4	2523	C13	2534	D12	2562	G17	2573	E18	3508	D3	3519	B12	3530	C9	3541	D8	3551	F14	3565	B20	3576	G17	3587	F7	3599	E18	6903	H10	7544	F12	7565	H18	9535	D8	9568	D6	9923	H3
1502	D2	1918	H4	2502	D5	2513	E4	2524	D13	2535	C12	2563	C17	2574	F19	3509	D6	3520	D13	3531	B9	3542	C9	3552	F10	3566	H17	3577	G16	3588	E16	5520	D15	6904	H9	7545	E12	7900	H8	9536	F13	9569	F17	2902	G8
1530	B15	1919	H3	2503	D3	2514	D4	2525	B13	2536	D10	2564	H17	2575	D17	3510	D5	3521	B13	3532	F8	3543	C8	3553	E12	3567	C18	3578	H16	3589	E10	5521	C14	6905	H9	7546	F11	8530	F11	9539	E11	9570	F17	2539	C14
1531	G15	1920	H2	2504	F6	2515	E4	2526	C13	2537	C10	2565	C19	2576	G17	3511	D6	3522	D14	3533	F7	3544	F13	3554	E14	3568	H18	3579	D17	3590	C11	6544	F10	7501	E4	7547	E11	9501	D2			9900	H7	3525	B14
1532	B10	1921	J2	2505	F5	2516	C5	2527	C12	2538	E14	2566	H17	2559	E19	3513	E3	3523	C14	3534	E8	3545	E13	3555	E15	3569	B19	3580	E18	3591	E9	6545	F9	7516	C12	7548	F13	9502	D4			9901	H7	6551	E8
1561	D17	1922	J4	2506	C3	2517	F5	2528	D12	2544	F13	2567	C18	3500	D3	3514	C11	3524	D14	3535	E14	3546	F10	3556	E10,	3570	F19	3581	E18	3592	F15	6546	E11	7530	F7	7549	E13	9503	D5	9562	C18	9902	H7		



DRAWING USE FOR FW20 & FW30 FAMILY ONLY.

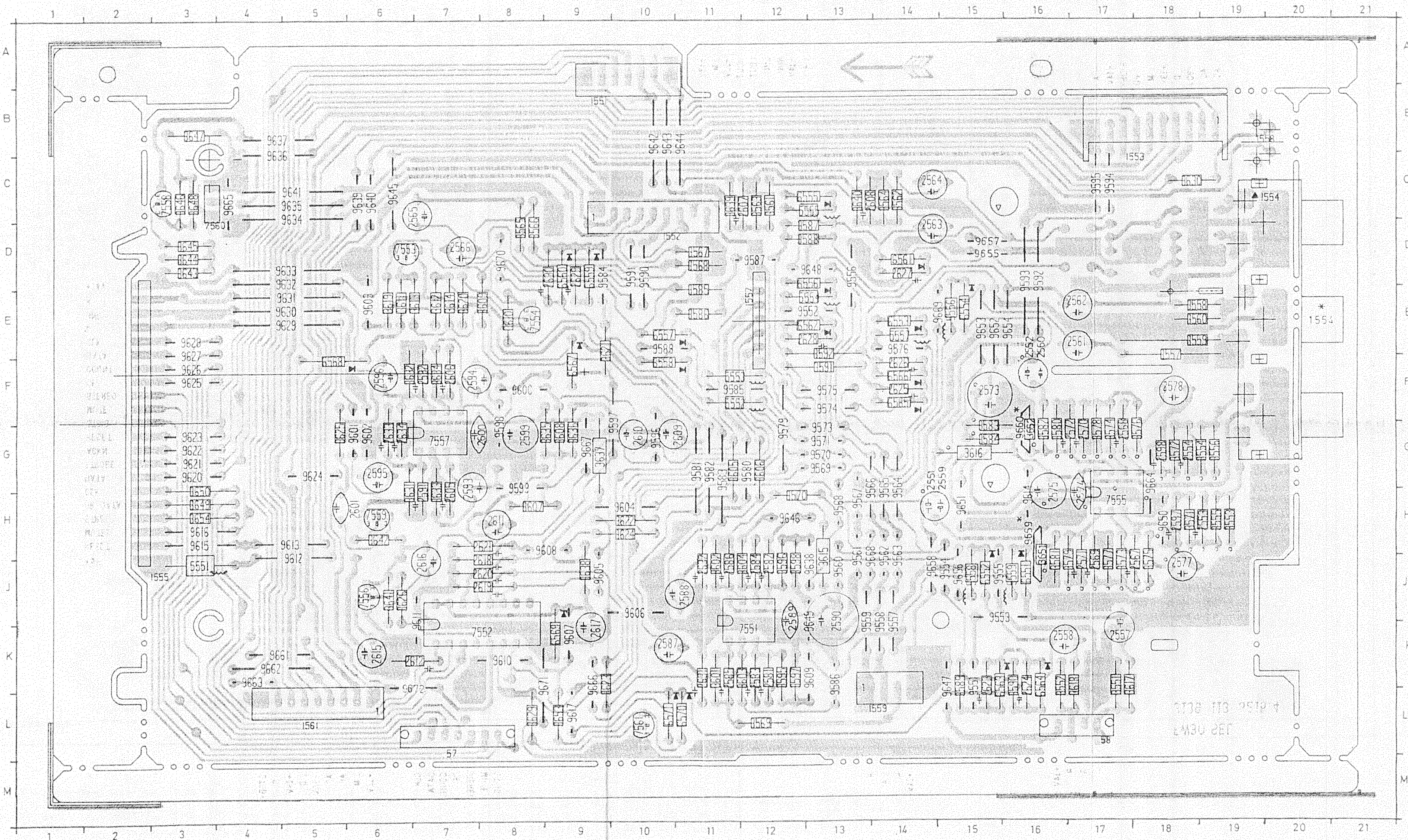
NOTE :

✳ NOT FOR FW20

▼ FOR -/21 ONLY

SELECTOR BOARD COMPONENT LAYOUT

057	L16	2554	G18	2571	J17	2589	K12	2607	C12	2625	F14	3556	G19	3573	J17	3588	D13	3607	H8	3622	H10	3637	G9	5552	F11	6558	E10	7553	D6	9558	E10	9574	F13	9592	D16	9607	K9	9624	G5	9639	C6	9654	E16	3569	L12
058	L17	2557	K17	2572	G17	2590	K13	2608	D12	2626	D14	3557	E18	3574	G17	3589	L15	3608	G9	3623	K9	3638	J9	5553	F11	6559	D9	7554	E9	9559	K13	9575	F13	9593	D16	9608	H9	9625	F3	9640	C6	9656	J15	3570	H12
1551	B9	2558	K16	2573	F15	2591	H6	2609	G11	2627	D14	3558	E18	3575	J18	3590	L16	3609	E8	3624	H10	3639	C11	5554	D13	6560	D9	7555	H17	9560	J13	9576	E14	9594	C17	9609	K13	9626	F3	9641	C4	9658	J14	3651	H16
1552	D10	2559	H15	2574	H17	2592	F6	2610	G10	2628	E12	3559	E18	3576	G18	3591	F13	3610	E8	3625	G5	3640	C13	5555	C13	6561	D14	7556	J6	9561	J13	9579	G12	9595	C17	9610	K8	9627	E3	9642	B10	9659	H16	3652	G16
1553	B18	2560	F16	2575	H16	2593	H7	2611	H8	2629	D9	3560	E18	3577	J17	3592	F13	3611	E6	3626	J6	3641	J6	5556	D15	6562	F13	7557	G7	9562	J14	9580	G12	9596	G10	9611	K7	9628	E3	9643	B10	9660	G16	3653	L9
1554	E20	2561	E17	2577	J18	2594	F7	2612	K7	2630	D9	3561	C12	3578	G17	3595	K12	3612	E7			3642	H6	5557	E14	6563	L15	7558	C3	9563	J14	9581	G11	9597	G10	9612	H5	9629	E5	9644	B11	9661	K4		
1554	G19	2562	E17	2578	F18	2595	G6	2615	K6	2631	K11	3562	C14	3579	J16	3596	J12	3613	E7			3643	D3	5558	J15	6564	L16	7559	H6	9564	H14	9582	G11	9598	G8	9613	H5	9630	E5	9645	C6	9662	K4	6570	L10
1556	J3	2563	D14	2581	K12	2596	F6	2616	J7	2632	J11	3563	C12	3580	G16	3597	K12	3614	E7	3629	L8	3644	D3	5559	J16	6565	F14	7560	C3	9565	H14	9583	G11	9599	G8	9614	H16	9631	E5	9646	H12	9663	K4	6571	L10
1557	E12	2564	C14	2582	J12	2597	H18	2617	K9	2633	G6	3564	C14	3581	J16	3598	J12	3615	J13	3630	C18	3645	D3	6551	J16	6566	F14	9551	L15	9566	H14	9584	D9	9600	F8	9615	H3	9632	D5	9647	K15	9664	H18	7561	L10
1558	B20	2565	C6	2583	K12	2598	G18	2618	H8	2634	G6	3565	D8	3582	G16	3601	K14	3616	G15	3631	H7	3646	C3	6552	J15	6567	E9	9552	E13	9567	H13	9585	F11	9601	G6	9616	H3	9633	D5	9648	E13	9665	C4		
1559	L14	2566	D7	2584	J12	2599	G8	2619	J8	3551	L17	3566	D8	3583	G15	3602	J11	3617	L17	3632	F7	3647	B3	6553	E14	6568	F5	9553	J15	9568	H13	9586	K13	9602	G6	9617	L9	9634	C4	9649	J13	9666	K9		
1561	L6	2567	J18	2585	K11	2600	G8	2620	J8	3552	L16	3567	D11	3584	G15	3603	K12	3618	L17	3633	H7	3648	C3	6554	E15	6569	K9	9554	J14	9569	G13	9587	D12	9603	E6	9620	G3	9635	C4	9650	H18	9667	G9		
2551	G15	2568	G17	2586	J11	2601	H6	2621	H8	3553	H18	3568	D11	3585	E11	3604	J12	3619	E6	3634	F7	3649	H3	6555	C13	6670	D8	9555	J15	9570	G13	9588	K14	9604	H10	9621	G3	9636	C4	9651	H15	9668	J14	9655	D15
2552	E16	2569	J17	2587	K10	2605	H7	2623	L15	3554	G18	3571	H18	3586	E11	3605	G11	3620	E7	3635	G9	3650	G3	6556	D13	7551	K12	9556	D13	9571	G13	9590	D10	9605	J9	9622	G3	9637	B4	9652	E16	9669	E15	9657	D15
2553	H19	2570	G17	2588	J11	2606	F7	2624	L16	3555	H19	3572	G18	3587	D13	3606	G12	3621	F9	3636	G9	5551	J3	6557	E10	7552	K8	9557	K14	9573	F13	9591	D10	9606	J10	9623	G3	9638	J13	9653	E15	9671	K8	9672	K6



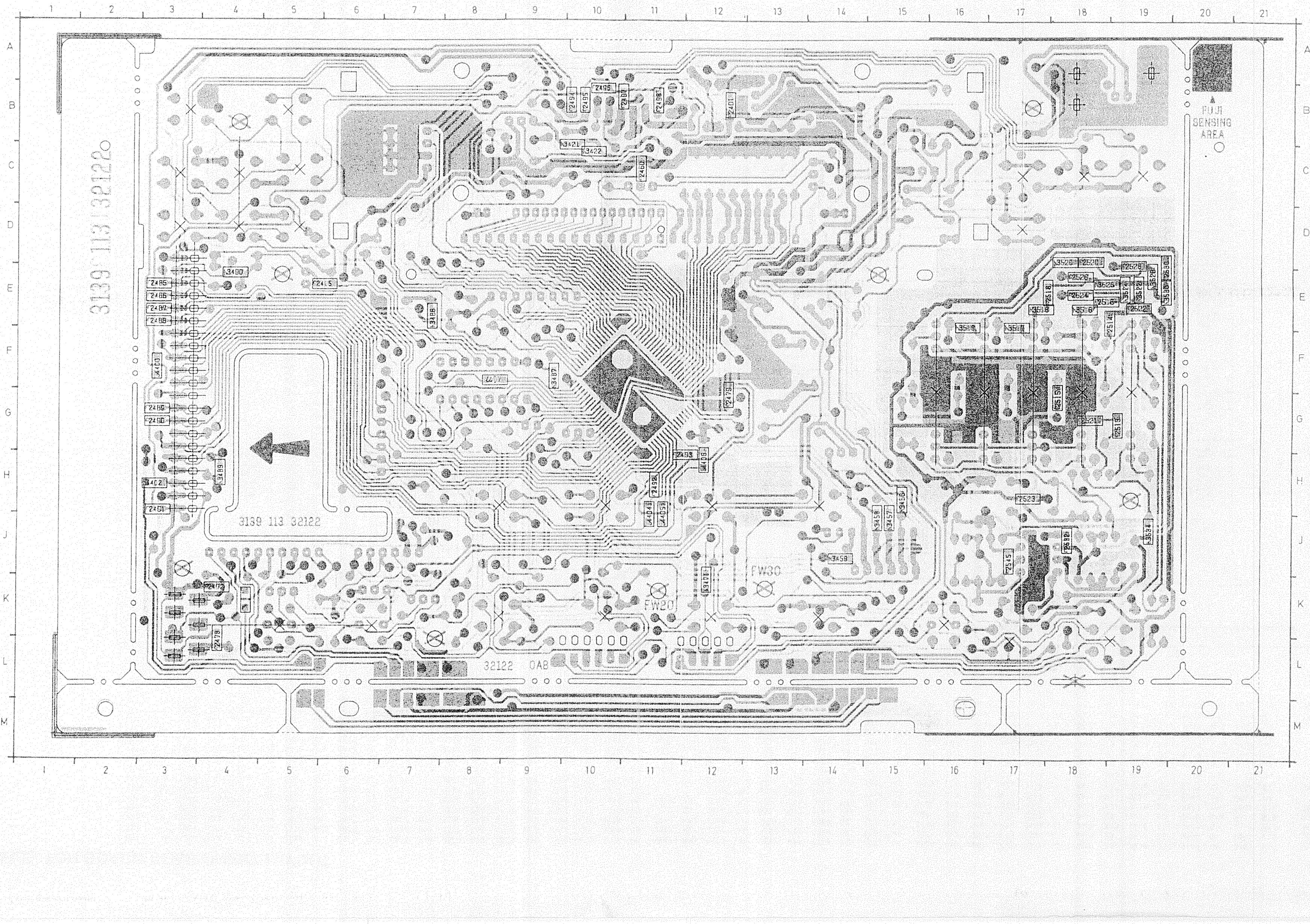
LEGEND

- ✱ FOR FW20 AND FW30 ONLY
  (CINCH SOCKET FOR AUX INPUT ONLY)
- ▲ FOR FW40 ONLY
  (CINCH SOCKET FOR AUX AND PHONO INPUT)
- ○ FOR FW40 ONLY
- @ NOT FOR FW20

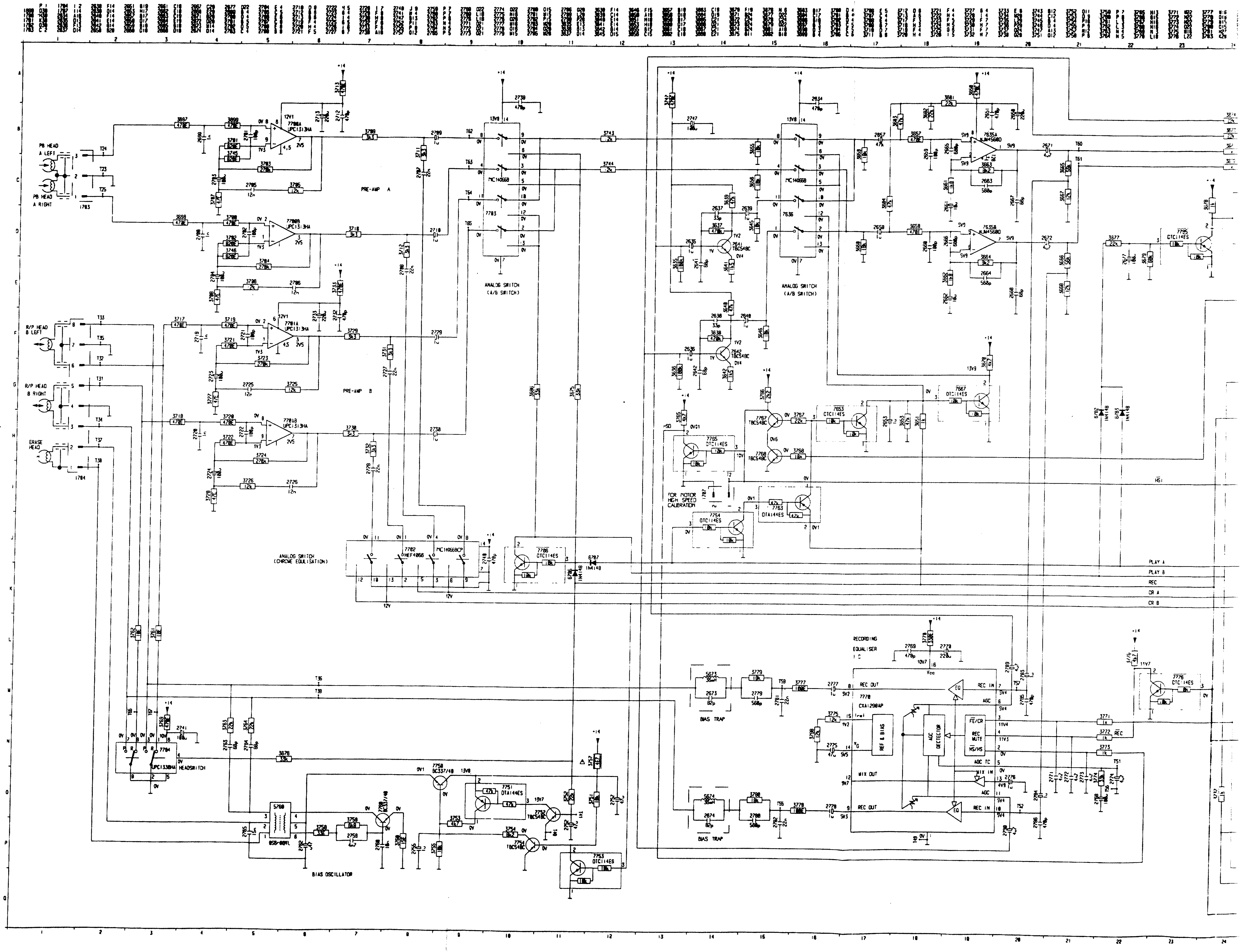
PCS 63 074

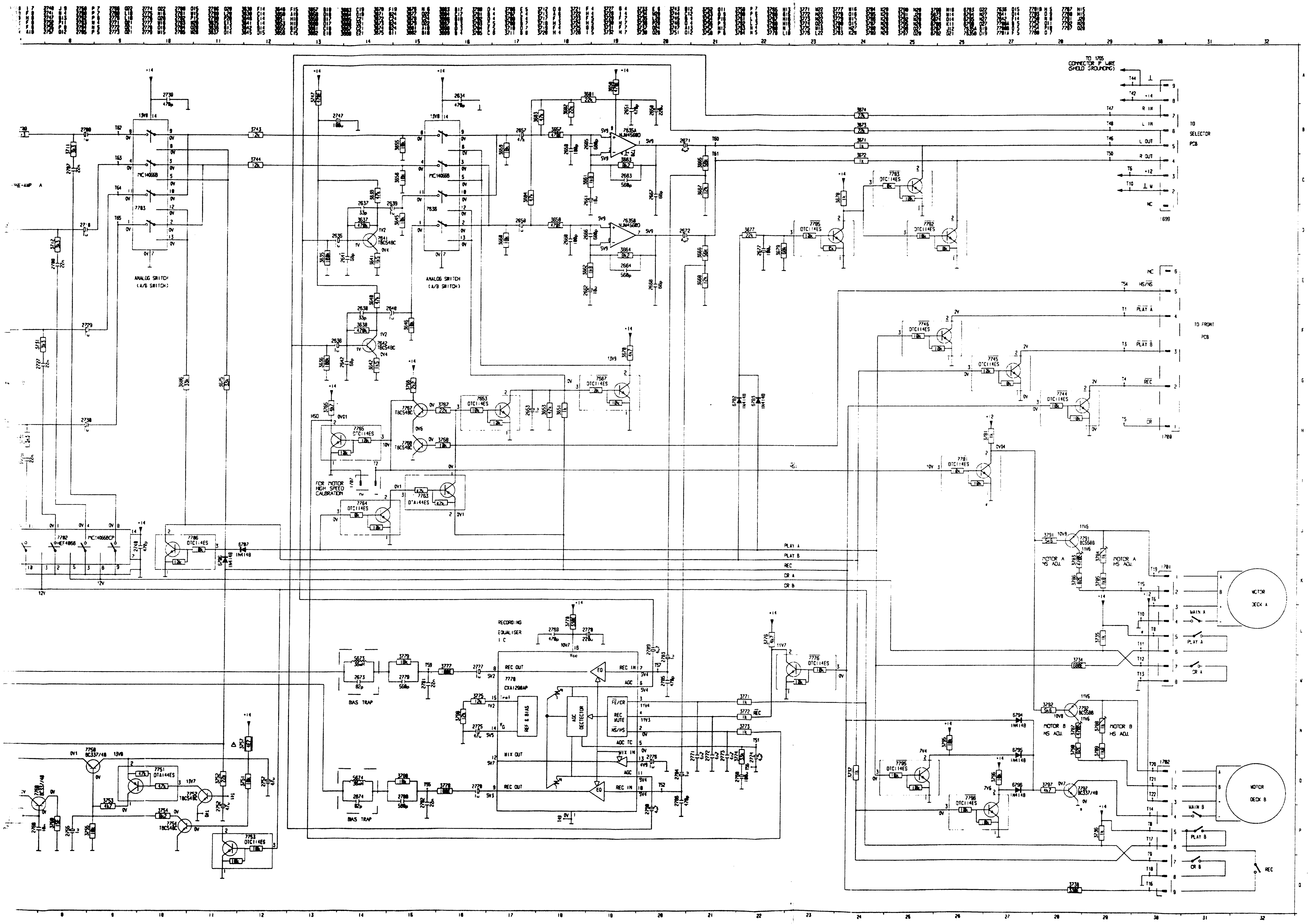
FRONT BOARD CHIP LAYOUT

2401	B12	2473	L4	2487	E3	2491	J3	2495	B10	2513	G19	2518	E17	2523	H17	2530	E19	3422	C10	3490	E4	3519	E16	3526	E18	4400	F3	4404	J11	2415	E5	3459	J14
		2479	G12	2488	E3	2492	H11	2496	B10	2514	E18	2520	D18	2524	E18	2532	J18	3487	F9	3516	E18	3520	D18	3528	E19			4405	J11	3456	H15	3471	K12
2460	C11	2485	E3	2489	G3	2493	H11	2497	B10	2515	G18	2521	G18	2526	E18	2545	J17	3488	E7	3517	E17	3522	E19	3530	E19	4402	H3	4406	H12	3457	J15		
2472	K4	2486	E3	2490	G3	2494	B9	2498	B11	2516	E18	2522	E19	2528	E19	3421	C9	3489	H4	3518	E17	3524	E19	3534	J19			4407	F8	3458	J14		


3139 113 32122
3139 113 32122
FUJI SENSING AREA
FW20
FW30
32122 0AB
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H J K L M

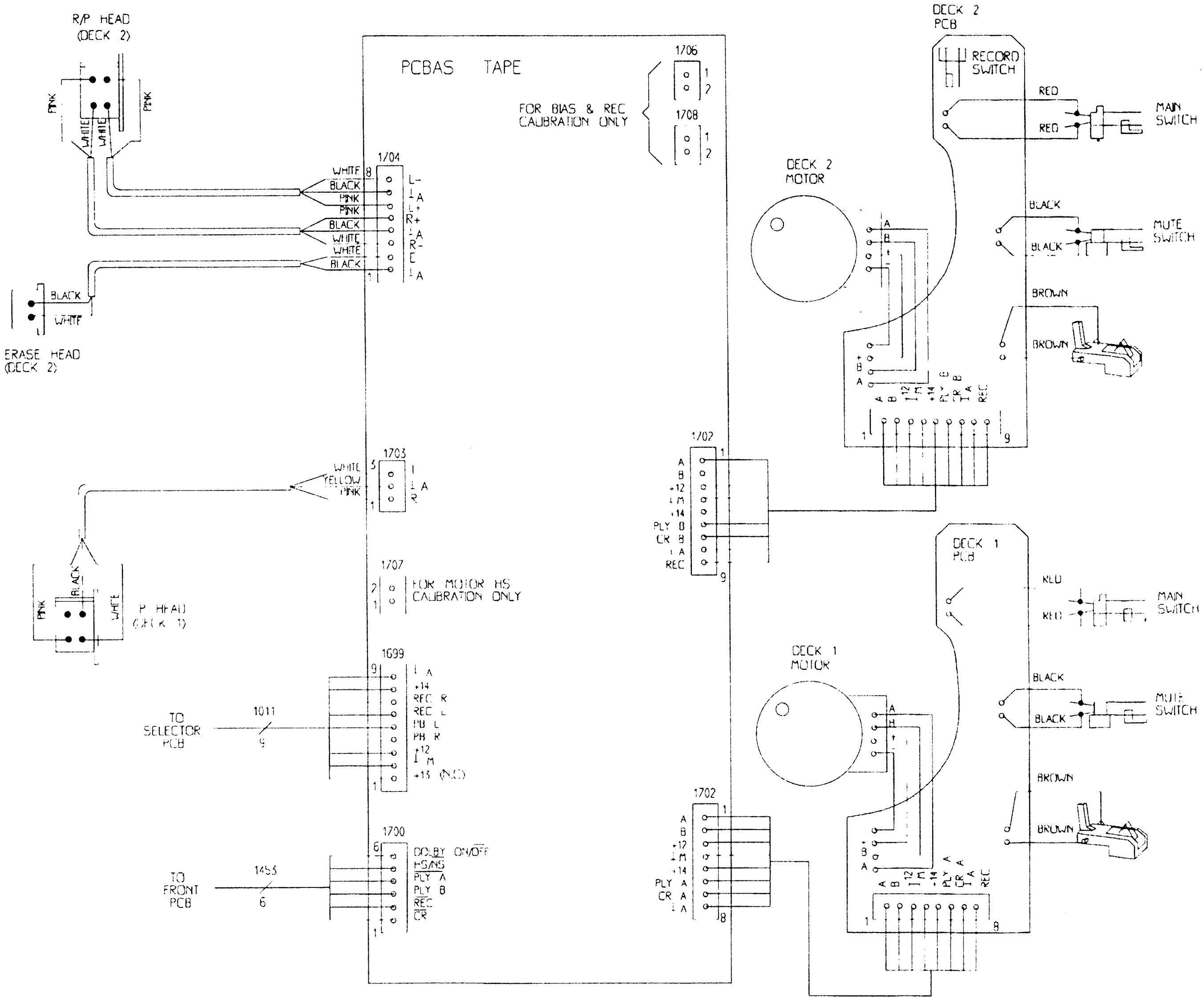
TAPECORE CIRCUIT DIAGRAM


PB HEAD A LEFT
PB HEAD A RIGHT
1783
R/P HEAD B LEFT
R/P HEAD B RIGHT
ERASE HEAD
1784
PRE-AMP A
PRE-AMP B
UPC1313HA
ANALOG SWITCH (A/B SWITCH)
MC14066B
ANALOG SWITCH (CHROME EQULISATION)
HEF4066
MC14066BCP
DTC114ES
1N4148
PLAY A
PLAY B
REC
CR A
CR B
RECORDING EQUALISER IC
CXA1208AP
REC OUT
REC IN
AGC
REF & BIAS
AGC DETECTOR
FE/CR
REC MUTE
NS/HS
MIX OUT
MIX IN
BIAS TRAP
BIAS OSCILLATOR
UPC1330HA HEADSWITCH
BC337/40
DTA144ES
TBC548C
FCR MOTOR HIGH SPEED CALIBRATION
XLM4560D
HS1


TO 1705 CONNECTOR 'P' WIRE (SHIELD GROUNDING)
TO SELECTOR PCB
R IN
L IN
L OUT
R OUT
+12
NC
1699
TO FRONT PCB
HS/NS
PLAY A
PLAY B
REC
CR
1700
ANALOG SWITCH (A/B SWITCH)
MC14066B
NJM4560D
DTC114ES
BC548C
DTA144ES
FOR MOTOR HIGH SPEED CALIBRATION
HEF4066B
MC14066BCP
1N4148
RECORDING EQUALISER I.C
CXA1298AP
REC OUT
REC IN
AGC
MIX OUT
MIX IN
AGC TC
FE/CR
REC MUTE
HS/NS
REF & BIAS
AGC DETECTOR
EQ
BIAS TRAP
BC556B
BC337/40
MOTOR A HS ADJ.
MOTOR A NS ADJ.
MOTOR B HS ADJ.
MOTOR B NS ADJ.
MOTOR DECK A
MOTOR DECK B
MAIN A
MAIN B
PLAY A
PLAY B
CR A
CR B
REC
1701
1702
PRE-AMP A

PCS 63 078

TAPE UNIT WIRING


R/P HEAD (DECK 2)
PINK
WHITE
WHITE
PINK
PCBAS TAPE
1706
1708
FOR BIAS & REC CALIBRATION ONLY
1704
WHITE
BLACK
PINK
PINK
BLACK
WHITE
WHITE
BLACK
L-
⊥ A
L+
R+
⊥ A
R-
E
⊥ A
BLACK
WHITE
ERASE HEAD (DECK 2)
1703
WHITE
YELLOW
PINK
⊥ A
R
BLACK
PINK
WHITE
P HEAD (DECK 1)
1707
FOR MOTOR HS CALIBRATION ONLY
1699
⊥ A
+14
REC R
REC L
PB L
PB R
+12
⊥ M
+13 (N.C)
TO SELECTOR PCB
1011
9
1700
DOLBY ON/OFF
HS/NS
PLY A
PLY B
REC
CR
TO FRONT PCB
1453
6
1702
A
B
+12
⊥ M
+14
PLY B
CR B
⊥ A
REC
1702
A
B
+12
⊥ M
+14
PLY A
CR A
⊥ A
DECK 2 PCB
RECORD SWITCH
RED
RED
MAIN SWITCH
DECK 2 MOTOR
BLACK
BLACK
MUTE SWITCH
BROWN
BROWN
DECK 1 PCB
RED
RED
MAIN SWITCH
DECK 1 MOTOR
BLACK
BLACK
MUTE SWITCH
BROWN
BROWN

Adjustment	Cassette	Recorder position PB Deck	 R/P Deck	Measure at	Measure Across	Read on	Adjust with	Adjust to
Azimuth	12.5kHz SBC 420*	Play	-	1510		mV-meter	Left hand screw play head	Max. L = R
		-	Play	1510			Left hand screw R/P head	
Motor speed (High)	3150Hz SBC 420*	Play	-	1510		Wow and Flutter meter	3784	5355Hz ± 80Hz #1
		-	Play	1510			3788	
Motor speed (Normal)	3150Hz SBC 420*	Play	-	1510		Wow and Flutter meter	3783	3150Hz ± 45Hz #2
		-	Play	1510			3787	

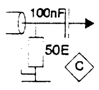
* SBC 420 : 4822 397 30071

** SBC 419 : 4822 397 30069

#1 Short 7781 base to ground during high speed adjustment. After adjustment 7781 base grounding must be removed.

#2 The wow and flutter value should not exceeds 0.4% DIN.

TUNER Adjustment table (ECO 4 FM/MW- and FM/MW/LW - versions)

Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM /00/01/05/10/17			108 MHz	5120	◇ 1	8 ± 0.2V
87.5 - 108MHz			87.5MHz	check		4.1 ± 0.5V
FM /14 East Europe			108 MHz	5120		8V ± 0.2V
65.81 - 108MHz			65.81 MHz	check		0.8 ± 0.4V
MW /01/17 2-band version			1710kHz	5123		9V ± 0.1V
530 - 1710kHz			530kHz	check		1V ± 0.4V
LW /00/05/10/14			279kHz	5122		8V ± 0.2V
153 - 279kHz			153kHz	check		1V ± 0.4V
MW /00/05/10/14			1611kHz	5123		8V ± 0.1V
522 - 1611kHz			522kHz	check		1V ± 0.4V
FM - RF						
FM /00/01/05/10/17	108MHz	◇ A mod=1kHz Δf=22.5kHz	108MHz	2115	◇ 3	MAX ↕
	87.5MHz		87.5MHz	5109		
FM /14 East Europe	108MHz		108MHz	2115		
	65.81MHz		65.81MHz	5109		
VCO						
FM	98 MHz, 1mV continuous wave	◇ A	98MHz	3148	◇ 2	152 ± 1 kHz
AM - IF						
MW	540kHz Δf = 10kHz as low as possible		540kHz	5142 5140	◇ 4	symmetrical and max height
AM - RF						
LW	198kHz	◇ B mod=1kHz 30% AM	198kHz	5108	◇ 4	MAX
MW /00/05/10/14 3-band version	1494kHz		1494kHz	2113		MAX ↕
	549kHz		549kHz	5107		
MW /01/17 2-band version	1500kHz		1500kHz	2113		
	550kHz		550kHz	5107		

* Use Service Test Program. By selecting the TUNER TEST test frequencies will be stored as preset frequ. automatically.

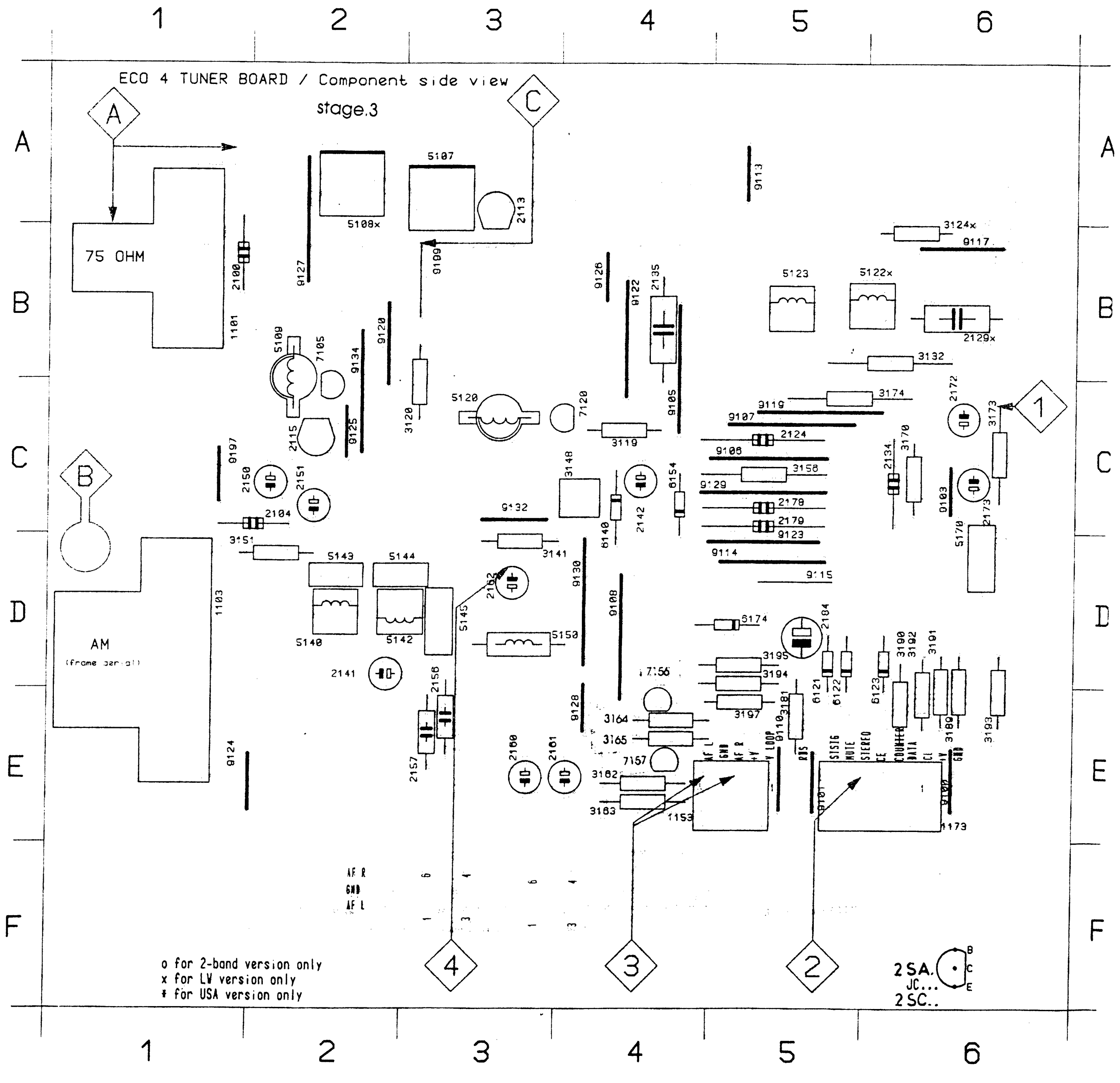
↕ repeat

Note : Please read /00 as /20, /01 as /21, /17 as /37 etc.

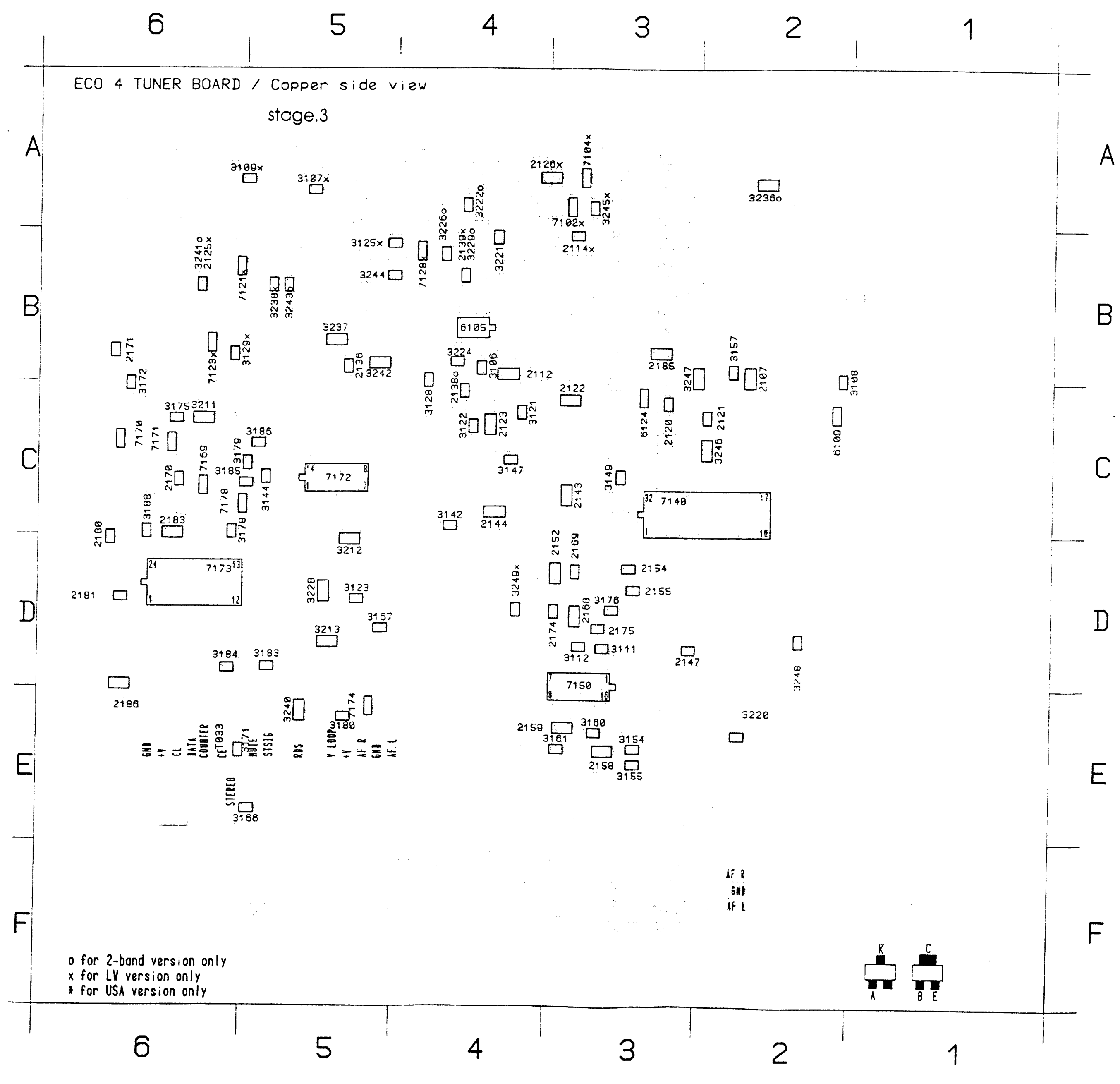
ECO4 COMPONENT AND CHIP LAYOUT - For all versions produced from wk 249 onwards except /22.

1101 B 1	2129x B 6	2160 E 3	3120 B 3	3164 E 4	3192 D 6	5122x B 5	6121 D 5	7157 E 4	9113 A 5	9125 C 2	9199 B 3
1103 D 1	2134 C 6	2161 E 4	3124x B 6	3165 E 4	3193 E 6	5123 B 5	6122 D 5	9100 E 6	9114 D 5	9126 B 4	
1153 E 5	2135 B 4	•2162 D 3	3132 B 5	3170 C 5	3194 D 4	5140 D 2	6123 D 6	9101 E 5	9115 D 5	9127 B 2	
1173 E 6	2141 D 2	2172 C 6	3141 D 3	3173 C 6	3195 D 4	5142 D 3	6140 D 4	9103 C 6	9117 B 6	9128 D 4	
2100 A 1	2142 C 4	2173 C 6	3148 C 3	3174 C 5	3197 E 4	5143 D 2	6154 C 4	9105 C 4	9119 C 5	9129 C 4	
2104 C 1	2150 C 2	2178 C 4	3151 D 1	3181 D 5	5107 A 3	5144 D 2	6174 D 4	9106 C 4	9120 C 2	9130 D 4	
2113 A 3	2151 C 2	2179 C 4	3156 C 4	3189 D 6	5108x A 2	5145 D 3	7105 C 2	9107 C 5	9122 B 4	9132 C 3	
2115 C 2	2156 D 3	2184 D 5	3162 E 4	3190 D 6	5109 C 2	5150 D 3	7120 C 4	9108 D 4	9123 D 4	9134 B 2	
2124 C 4	2157 E 3	3119 C 4	3163 E 4	3191 D 6	5120 C 3	5170 D 6	7156 E 4	9110 E 5	9124 E 1	9197 C 1	

7178 C 5	7104x A 3	3242 B 5	3220 E 2	3176 D 3	3147 C 4	3108 B 2	2169 D 3	2136 B 5	T033 E 5	T015 C 6	T001 B 1
	7121x B 6	3243o B 5	3221 B 4	3178 C 6	3149 C 3	3109x A 5	2170 C 6	2138o C 4	T036 B 6	T016 A 6	T002 B 1
	7123x B 6	3244 B 4	3222o A 4	3179 C 5	3154 E 3	3111 D 3	2171 B 6	2139x B 4	T038 D 6	T020 E 4	T005 E 1
	7128x B 4	3245x A 3	3224 B 4	3180 E 5	3155 E 3	3112 D 3	2174 D 3	2143 C 3	2107 B 2	T021 E 4	T006 D 1
	7140 C 2	3246 C 2	3225o B 4	3183 D 5	3157 B 2	3121 C 4	2175 D 3	2144 C 4	2112 B 4	T022 E 5	T007 D 2
	7150 D 3	3247 B 2	3228 D 5	3184 D 6	3160 E 3	3122 C 4	2180 D 6	2147 D 3	2114x B 3	T023 D 5	T008 D 2
	7169 C 6	3248 D 2	3229o B 4	3185 C 5	3161 E 3	3123 D 5	2181 D 6	2152 D 3	2120 C 3	T027 E 6	T009 B 2
	7170 C 6	3249x D 4	3236o A 2	3186 C 5	3166 E 5	3125x B 4	2183 C 6	2154 D 3	2121 C 2	T028 E 6	T010 D 3
	7171 C 6	6105 B 4	3237 B 5	3188 C 6	3167 D 5	3128 B 4	2185 B 3	2155 D 3	2122 C 3	T029 E 6	T011 C 3
	7172 C 5	6109 C 2	3238x B 5	3211 C 6	3171 E 5	3129x B 6	2186 D 6	2158 E 3	2123 C 4	T030 E 6	T012 D 2
	7173 D 6	6124 C 3	3240 E 5	3212 D 5	3172 C 6	3142 C 4	3106 B 4	2159 E 3	2125x B 6	T031 E 6	T013 E 2
	7174 E 5	7102x A 3	3241o B 6	3213 D 5	3175 C 6	3144 C 5	3107x A 5	2168 D 3	2126x A 3	T032 E 5	T014 D 3


1
2
3
4
5
6
ECO 4 TUNER BOARD / Component side view
stage.3
A
B
C
D
E
F
75 OHM
AM
(frame aerial)
5107
5108x
5123
5122x
2129x
3124x
9117
3132
3174
3119
3156
2124
2178
2179
9123
9114
9115
5143
5144
5140
5142
5150
5174
3195
3194
3197
3164
3165
7156
7157
3162
3163
1153
1173
AF R
GND
AF L
4
3
2
2SA..
JC...
2SC..
B
C
E

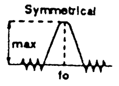
o for 2-band version only
x for LW version only
# for USA version only


6
5
4
3
2
1
ECO 4 TUNER BOARD / Copper side view
stage.3
A
B
C
D
E
F
3109x
3107x
2126x
7104x
3245x
7102x
2114x
3236o
3125x
3244
6105
7172
7173
7140
7150
2154
2155
2175
3111
2147
3220
2186
2181
3166
3154
3155
2158
AF R
GND
AF L
K
C
A
B
E

o for 2-band version only
x for LW version only
# for USA version only

TU
VA
FM
8
FM
6
MW
2
5
LW
MW
5
FM
FM
FM
E
VC
FM
AM
MW
AM
LW
MW
3
MW
2
* Use
rep

TUNER ADJUSTMENT

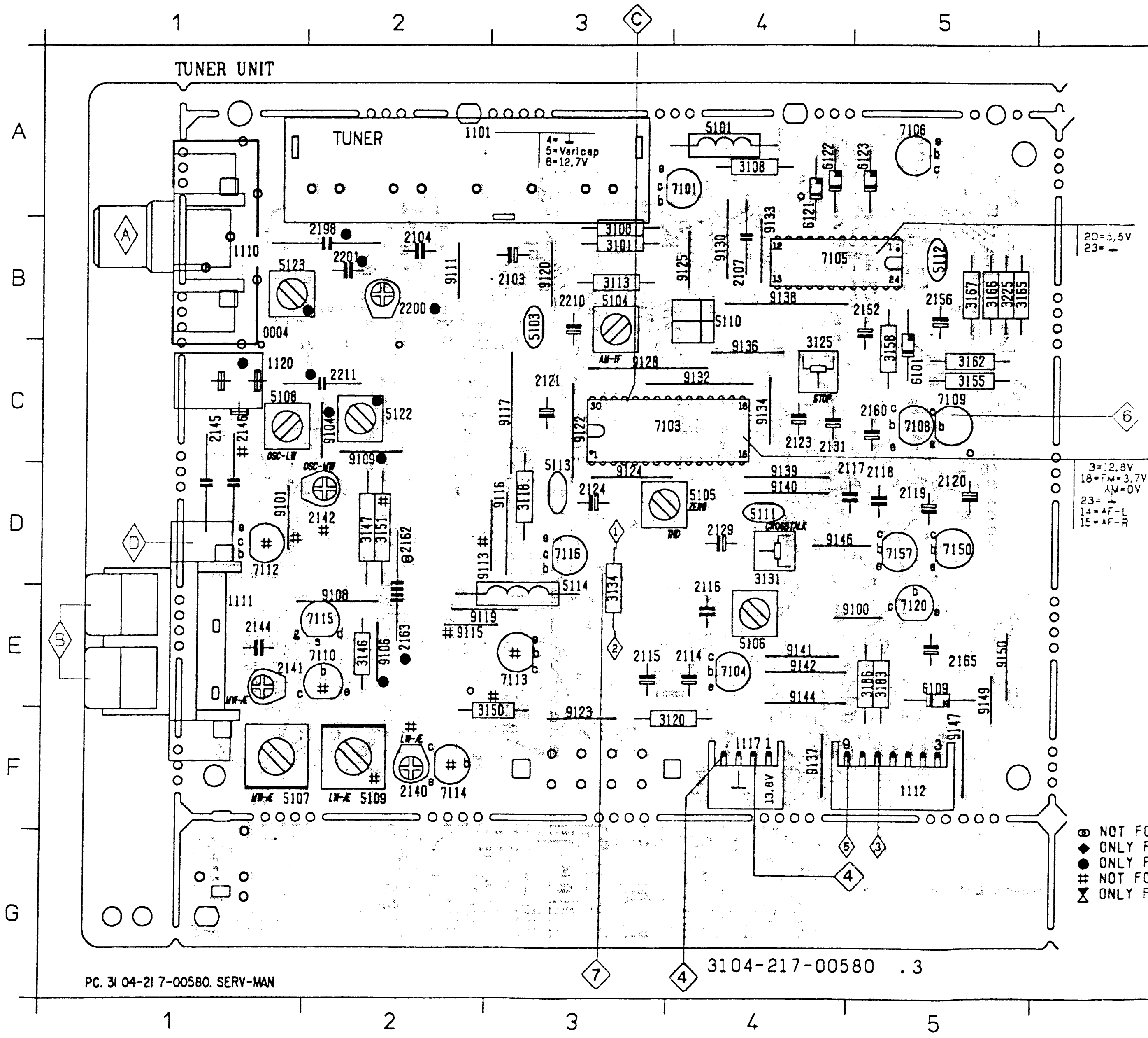
SK...	FREQUENCY	I/P	DISPLAY	ADJUST	O/P	SCOPE/METER
Varicap alignment						
FM 87.5-108MHz			108MHz 87.5MHz	check	⑥	8V ± 1V 1.65V ± 0.35V
FM @ 65-108MHz			108MHz 65MHz	check		8.75V ± 1.75V 2.25V ± 0.75V
LW + 153-279kHz			279kHz 153kHz	5108 check		8.5V 1V ± 0.3V
MW 522-1611kHz (530-1700kHz)			1611kHz (1710kHz)	2142 (5108)		8.5V (8.5V)
			522kHz (530kHz)	check		1.1V ± 0.3V (1.0V ± 0.3V)
FM						
FM	98MHz mod = 1kHz Δf = 75kHz 1mV	Ⓐ	98MHz	5105	①–②	0V ± 0.02V
	98MHz 90% Left 9% Pilot 1mV		98MHz	3131	④ Right	min.
				check	③	Lo
	98MHz mod = 1kHz Δf = 75kHz 15μV		98MHz	3125	⑤	Hi ⎺⎺⌉⎽⎽ Lo
AM-IF						
MW	450kHz Δf = 10kHz 50Hz	Ⓒ	1494kHz (1600kHz)	5104	⑦	 Symmetrical max fo
AM-RF						
LW *	155kHz 270kHz	Ⓑ	155kHz 270kHz	5109 2140	④	max. ↕
MW *	558kHz (560kHz)		558kHz (560kHz)	5107		
	1494kHz (1600kHz)		1494kHz (1600kHz)	2141		

* Mod 1kHz 30% AM
(..) For Grid = 10kHz
+ For LW version only
@ For /34 version only

Repeat ↕

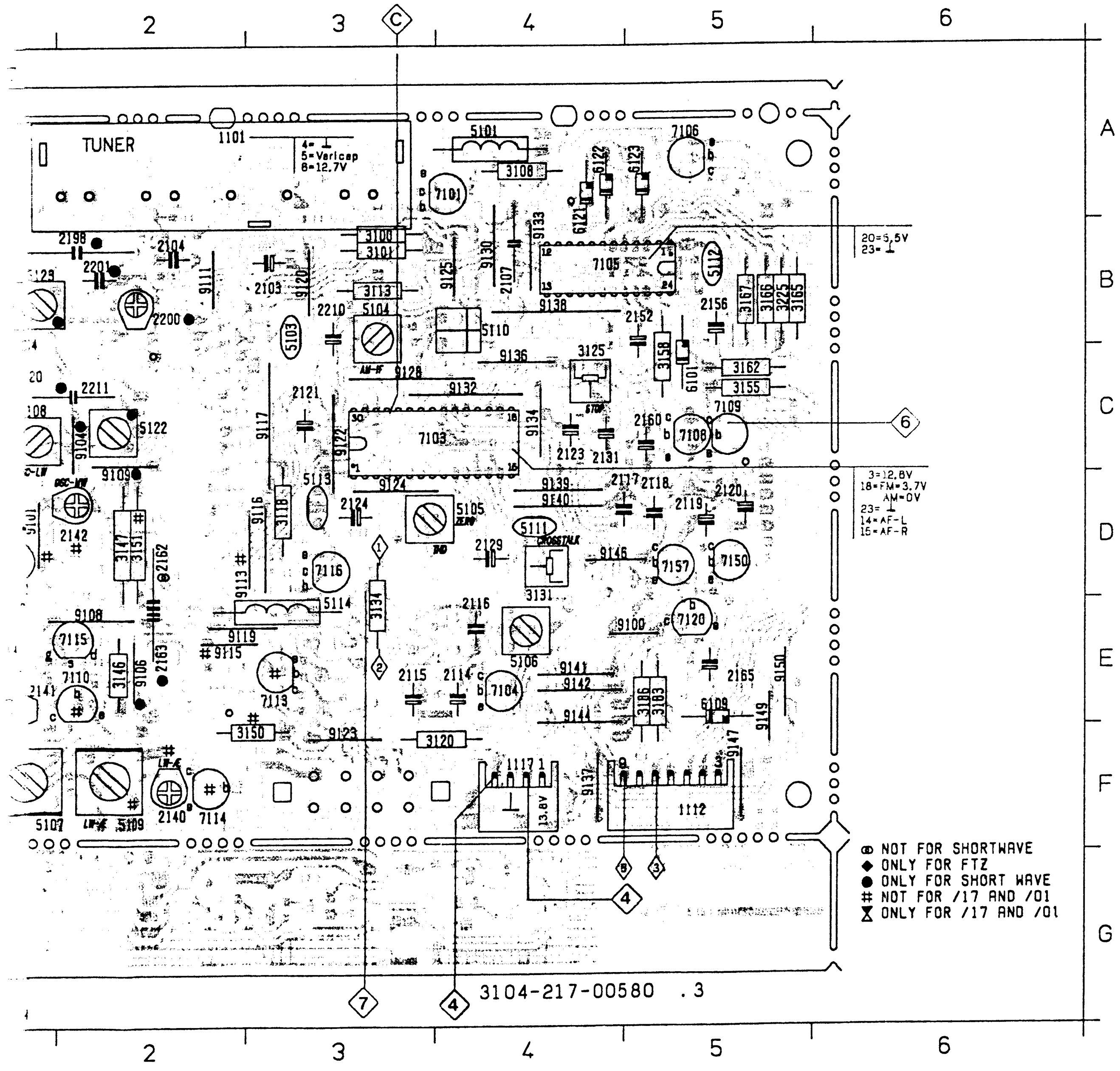
TUNER 92 COMPONENT AND CHIP LAYOUT - For /22 and other versions produced before wk 2

0004	B1
1101	A2
1110	B1
1111	E1
1112	F5
1117	F4
1120	C1
2103	B3
2104	B2
2107	B4
2114	E4
2115	E3
2116	E4
2117	D5
2118	D5
2119	D5
2120	D5
2121	C3
2123	C4
2124	D3
2129	D4
2131	C4
2140	F2
2141	E1
2142	D2
2144	E1
2145	C1
2146	C1
2152	B5
2156	B5
2160	C5
2162	D2
2163	E2
2165	E5
2198	B2
2200	B2
2201	B2
2210	B3
2211	C2
3100	B3
3101	B3
3108	A4
3113	B3
3118	D3
3120	F4
3125	C4
3131	D4
3134	E3
3146	E2
3147	D2
3150	F3
3151	D2
3155	C5
3158	C5
3162	C5
3165	B5
3166	B5
3167	B5
3183	E5
3186	E5
3225	B5
5101	A4
5103	B3
5104	B3
5105	D4
5106	E4
5107	F1
5108	C1
5109	F2
5110	B4
5111	D4
5112	B5
5113	D3
5114	E3
5122	C2
5123	B1
6101	C5
6109	E5
6121	A4
6122	A4
6123	A5
7101	A4
7103	C3
7104	E4
7105	B4
7106	A5
7108	C5
7109	C5
7110	E2
7112	D1
7113	E3
7114	F2
7115	E2
7116	D3
7120	E5
7150	D5
7157	D5
9100	E5
9101	D1
9104	C2
9106	E2
9108	E2
9109	D2
9111	B2
9113	D2
9115	E2
9116	D3
9117	C3
9119	E2
9120	B3
9122	C3
9123	F3
9124	D3
9125	B4
9128	C3
9130	B4
9132	C4
9133	B4
9134	C4
9136	C4



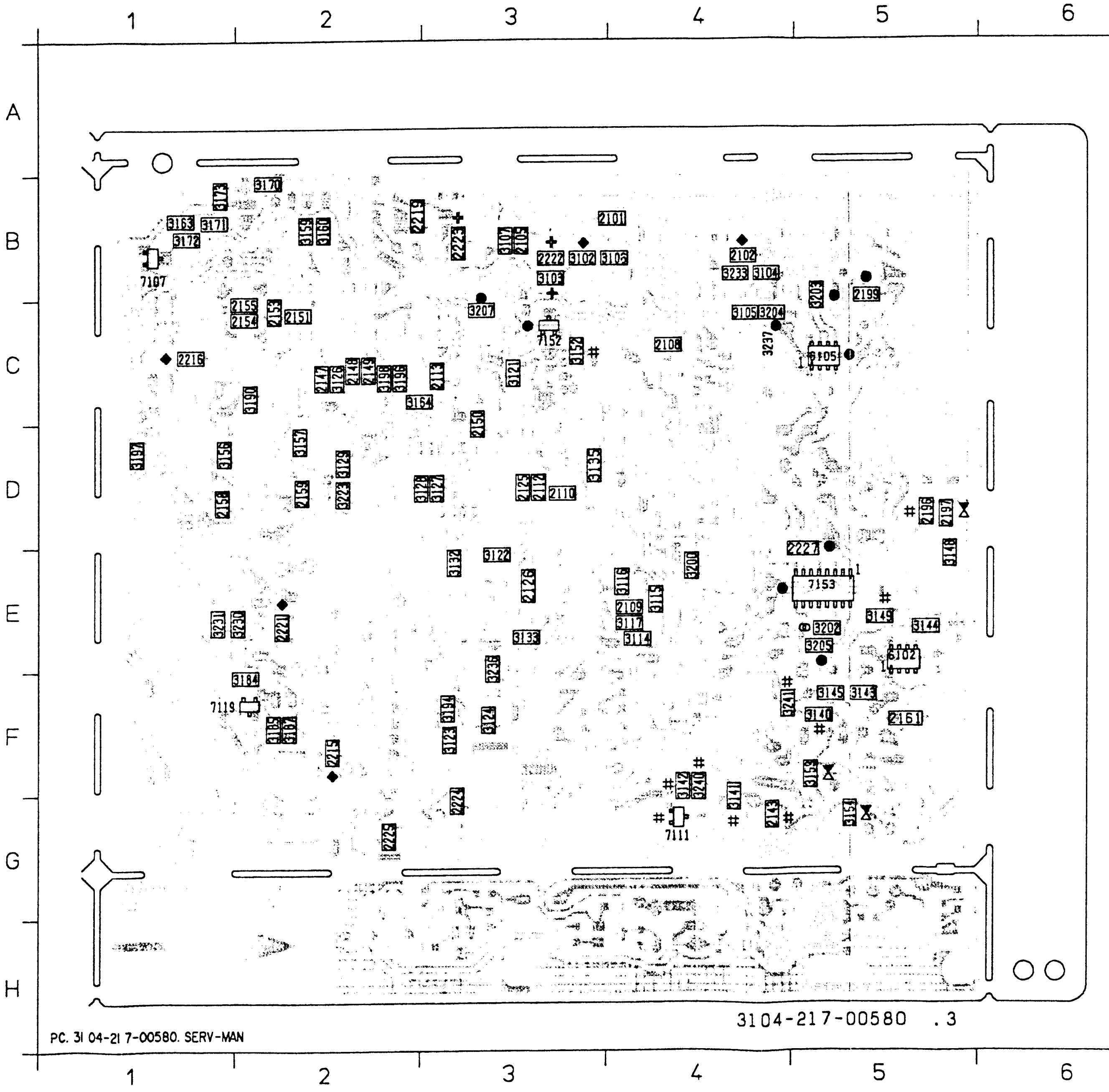
AND CHIP LAYOUT - For /22 and other versions produced before wk 249.

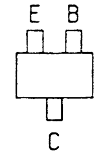
2	D2
4	E1
5	C1
6	C1
2	B5
3	B5
[illegible]	C5
2	D2
3	E2
5	E5
8	B2
0	B2
2201	B2
2210	B3
2211	C2
3100	B3
3101	B3
3108	A4
3113	B3
3118	D3
3120	F4
3125	C4
3131	D4
3134	E3
3146	E2
3147	D2
3150	F3
3151	D2
3155	C5
3158	C5
3162	C5
3165	B5
3166	B5
3167	B5
3183	E5
3186	E5
3225	B5
5101	A4
5103	B3
5104	B3
5105	D4
5106	E4
5107	F1
5108	C1
5109	F2
5110	B4
5111	D4
5112	B5
5113	D3
5114	E3
5122	C2
5123	B1
6101	C5
6109	E5
6121	A4
6122	A4
6123	A5
7101	A4
7103	C3
7104	E4
7105	B4
7106	A5
7108	C5
7109	C5
7110	E2
7112	D1
7113	E3
7114	F2
7115	E2
7116	D3
7120	E5
7150	D5
7157	D5
9100	E5
9101	D1
9104	C2
9106	E2
9108	E2
9109	D2
9111	B2
9113	D2
9115	E2
9116	D3
9117	C3
9119	E2
9120	B3
9122	C3
9123	F3
9124	D3
9125	B4
9128	C3
9130	B4
9132	C4
9133	B4
9134	C4
9136	C4
9137	F4
9138	B4
9139	D4
9140	D4
9141	E4
9142	E4
9144	E4
9146	D4
9147	F5
9149	E5
9150	E5

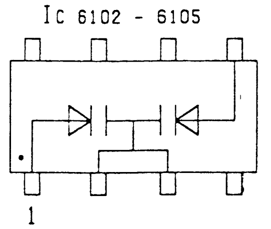


⊕ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
● ONLY FOR SHORT WAVE
NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01

2101	B4
2102	B4
2105	B3
2108	C4
2109	E4
2110	D3
2112	D3
2113	C3
2125	D3
2126	E3
2143	G4
2147	C2
2148	C2
2149	C2
2150	D3
2151	C2
2153	C2
2154	C2
2155	C2
2158	D1
2159	D2
2161	F5
2196	D5
2197	D5
2199	C5
2215	F2
2216	C1
2219	B2
2221	E2
2222	B3
2223	B3
2224	G3
2225	G2
2227	E5
3102	B3
3103	B3
3104	B4
3105	C4
3106	B4
3107	B3
3114	E4
3115	E4
3116	E4
3117	E4
3121	C3
3122	E3
3123	F3
3124	F3
3126	C2
3127	D3
3128	D3
3129	D2
3132	E3
3133	E3
3135	D3
3140	F5
3141	G4
3142	F4
3143	F5
3144	E5
3145	F5
3148	E5
3149	E5
3152	C3
3153	F5
3154	G5
3156	D1
3157	D2
3159	B2
3160	B2
3163	B1
3164	C2
3170	B2
3171	B1
3172	B1
3173	B1
3184	F2
3185	F2
3187	F2
3190	C2
3194	F3
3196	C2
3197	D1
3198	C2
3200	E4
3202	E5
3203	B5
3204	C4
3205	E5
3207	C3
3223	D2
3230	E2
3231	E1
3233	B4
3236	E3
3237	C4
3240	F4
3241	F4
6102	E5
6105	C5
7107	B1
7111	G4
7119	F1
7152	C3
7153	E5



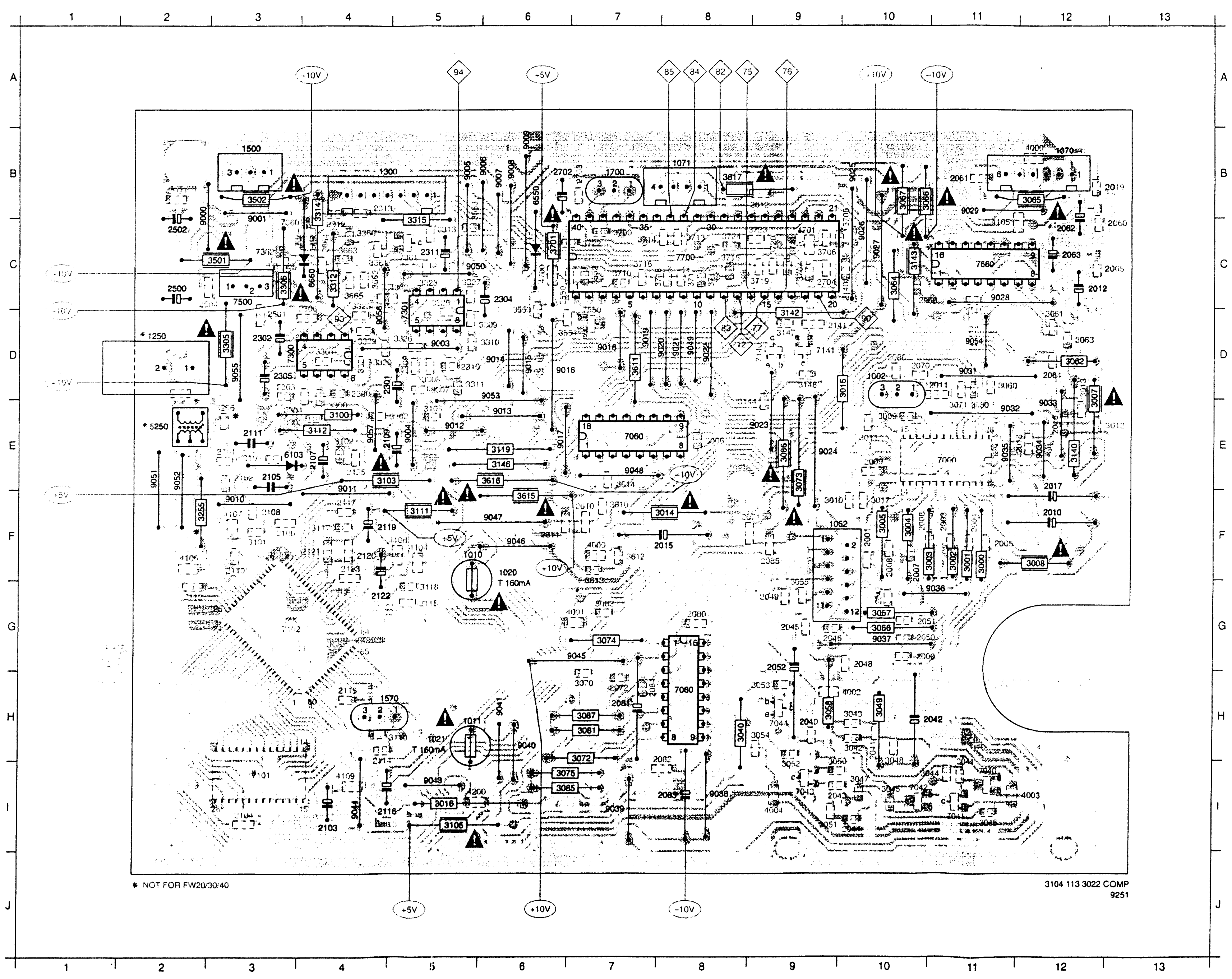




⊕ NOT FOR SHORTWAVE
◆ ONLY FOR FTZ
+ NOT FOR FTZ
● ONLY FOR SHORT WAVE
NOT FOR /17 AND /01
⧗ ONLY FOR /17 AND /01

CD COMPONENT AND CHIP LAYOUT

1002	D10	2006	F10	2050	G10	2101	E3	2122	G4	2502	C2	3010	F9	3052	I9	3075	I6	3140	E12	3310	D5	3552	C7	3711	C8	4106	F2	7080	H8	9007	B6	9027	C10	9049	D8
1010	F5	2009	E10	2051	G10	2102	E3	2123	F4	2503	B2	3011	E10	3053	H9	3080	E11	3141	D11	3311	D5	3553	C5	3713	C8	4107	F3	7101	I3	9008	B6	9028	C11	9050	C5
1011	H5	2010	F12	2052	G9	2103	I4	2125	E4	2504	C2	3012	E12	3054	H9	3081	H7	3142	D9	3312	C4	3610	F7	3714	C7	4108	F4	7102	G3	9009	B6	9029	B11	9051	E2
1020	F6	2011	D10	2060	C12	2104	I3	2140	C10	2550	C8	3013	D12	3055	G9	3082	G7	3143	C10	3313	C5	3611	D7	3715	C8	4109	I4	7140	D9	9010	F3	9031	D11	9052	E2
1021	H5	2012	C12	2061	B11	2105	E3	2141	D9	2610	F7	3014	F7	3056	G10	3085	I6	3144	E8	3314	C4	3612	F7	3716	C7	4200	I5	7141	D9	9011	F4	9032	E11	9053	D5
1052	F9	2015	F7	2062	C12	2106	F3	2253	E2	2611	F6	3015	D10	3057	G10	3086	E9	3146	E6	3315	C5	3613	G7	3717	C8	4302	C4	7300	D3	9012	E5	9033	E12	9054	D11
1070	B12	2016	E12	2063	C12	2107	E4	2300	D4	2612	B8	3016	I5	3058	H9	3087	H7	3147	D9	3320	D4	3614	E7	3718	C7	4600	F7	7301	D5	9013	E6	9034	E12	9055	D3
1071	B8	2017	E12	2064	D12	2108	F3	2301	D4	2702	B6	3017	F10	3060	D11	3100	E4	3148	D9	3321	D4	3615	F6	3719	C8	4700	C6	7360	C3	9014	D6	9035	E11	9056	D4
1250	D2	2018	E12	2065	C12	2109	E4	2302	D3	2703	B7	3040	H8	3061	D12	3101	F3	3255	F2	3322	D4	3616	E6	3720	C9	4701	C9	7361	C5	9015	D6	9036	G10	9057	E4
1300	B4	2019	B12	2066	C10	2110	F3	2303	D3	2704	C9	3041	I11	3062	D12	3102	E4	3256	E3	3323	C4	3617	B8	3721	C9	5250	E2	7362	C3	9016	D6	9037	G10		
1500	B3	2040	H9	2070	D10	2111	E3	2304	C8	3000	F11	3042	H10	3063	D12	3103	E4	3300	E4	3325	C5	3662	C4	3722	C7	6103	E3	7500	C3	9017	E6	9038	I8		
1570	H4	2041	H10	2071	F8	2112	G2	2305	D3	3001	F11	3043	H10	3064	C10	3105	I5	3301	D4	3326	D5	3663	C4	3723	C8	6550	B6	7550	D7	9018	D7	9039	I7		
1700	B7	2042	H10	2072	H7	2114	I4	2306	D3	3002	F11	3044	I10	3065	B12	3106	E5	3302	E4	3327	C5	3664	C4	3724	C8	6660	C4	7660	C11	9019	D7	9040	H6		
2000	G10	2043	I9	2080	G8	2115	H4	2309	D5	3003	F11	3045	I10	3066	B10	3109	E3	3303	E3	3328	C5	3665	C4	4000	B12	7000	E11	7700	C8	9020	D8	9041	H6		
2001	F10	2044	I10	2081	H7	2116	I4	2310	D5	3004	F10	3046	I11	3067	B10	3110	H5	3304	E3	3360	C4	3700	C7	4001	G6	7040	I11	9000	C2	9021	D8	9043	I5		
2003	F11	2045	G9	2082	I7	2117	F4	2311	C5	3005	F10	3047	I10	3070	H7	3111	F5	3305	D3	3361	C4	3701	C6	4002	H10	7041	I11	9001	C3	9022	D8	9044	I4		
2004	F11	2046	G9	2083	I8	2118	G5	2312	C4	3006	E8	3048	I10	3071	E11	3112	E4	3306	C3	3501	C2	3706	C9	4003	I12	7042	I10	9003	D5	9023	E8	9045	G6		
2005	F11	2047	G10	2084	H7	2119	F4	2313	B4	3007	E12	3049	H10	3072	I7	3117	F4	3307	D5	3502	B3	3707	C9	4004	I9	7043	I9	9004	E5	9024	E9	9046	F6		
2007	G10	2048	G10	2085	F9	2120	F4	2500	C2	3008	F12	3050	I9	3073	F9	3118	G5	3308	D5	3550	D6	3708	C10	4104	F5	7044	H9	9005	B5	9025	B10	9047	F6		
2008	F10	2049	G9	2086	D10	2121	F4	2501	D3	3009	E10	3051	I9	3074	G7	3119	E6	3309	D5	3551	D6	3710	C7	4105	C11	7060	E7	9006	B6	9026	C10	9048	E7		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C
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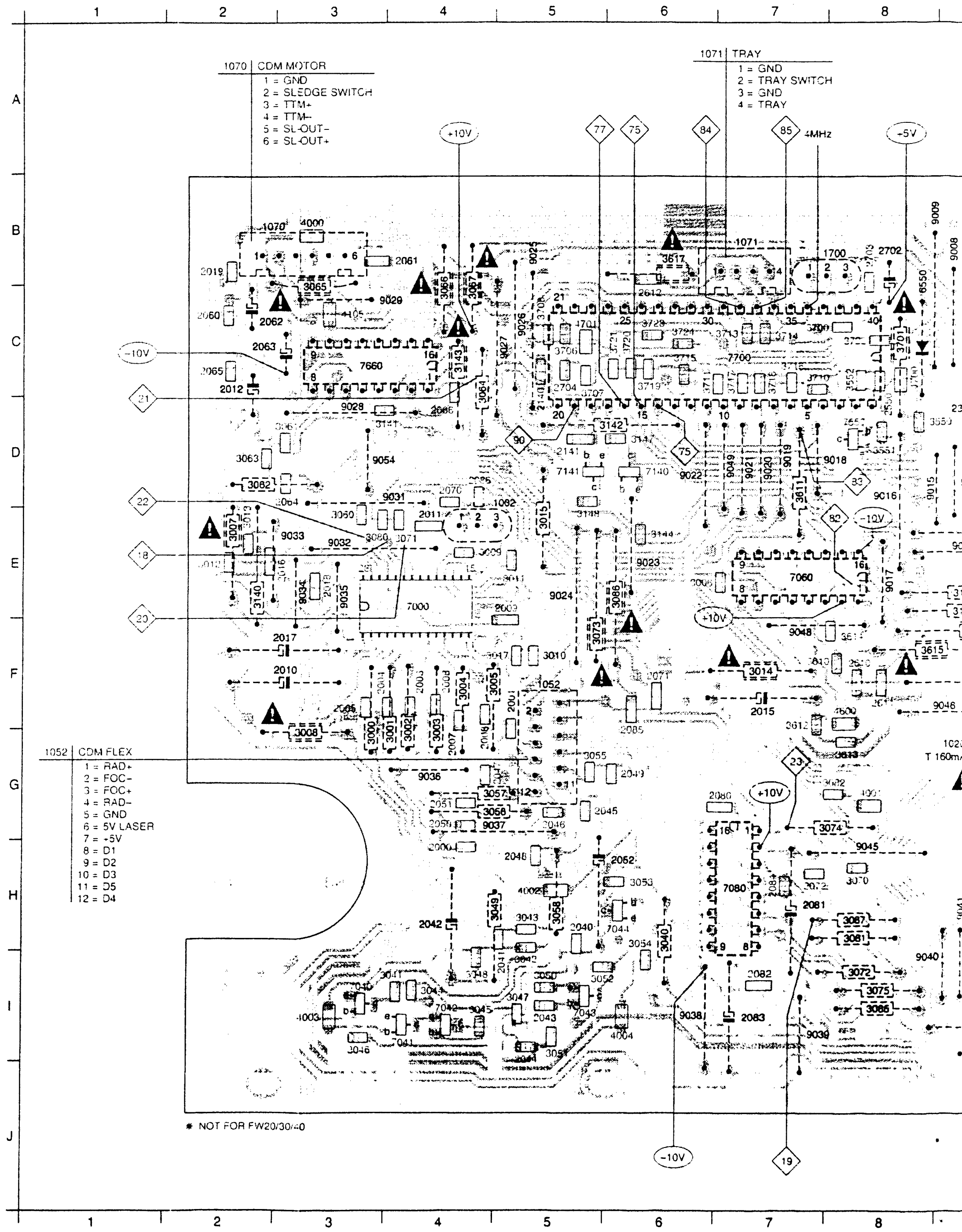
F
G
H
I
J
-10V
94
+5V
85
84
82
75
76
+10V
-10V
1500
1300
1700
1071
3617
1070
4000
7700
7560
7660
7060
7080
7500
7300
1250
5250
1052
1010
1020
T 160mA
1011
1021
T 160mA
1570
* NOT FOR FW20/30/40
3104 113 3022 COMP
9251
+5V
+10V
-10V

1002	E4	2007	G4	2046	G5	2081	H7	2114	I10	2304	D9	2703	B8	3016	I9	3056	G4	3081	H8	3140	E2	3308	E9
1010	F9	2006	F4	2047	G5	2082	I7	2115	H10	2305	D11	2704	C5	3017	F4	3057	G4	3082	G7	3141	D3	3309	D9
1011	H9	2008	G4	2048	H5	2083	I7	2116	I10	2306	D11	3000	G3	3040	I6	3058	H5	3085	I8	3142	D5	3310	D9
1020	G9	2009	E5	2049	G6	2084	H7	2117	F10	2309	D10	3001	G4	3041	I3	3060	E3	3086	E6	3143	C4	3311	E9
1021	I9	2010	F2	2050	G4	2085	G6	2118	G9	2310	D9	3002	G4	3042	I5	3061	D2	3087	H8	3144	E6	3312	D11
1052	F5	2011	E4	2051	G4	2086	D4	2119	F10	2311	C9	3003	G4	3043	H5	3062	D2	3100	E10	3146	E9	3313	C9
1070	B2	2012	C2	2052	H6	2101	E12	2120	F10	2312	C10	3004	F4	3044	I4	3063	D2	3101	F11	3147	D6	3314	C11
1071	B7	2015	F7	2060	C2	2102	F11	2121	F11	2313	C10	3005	F5	3045	I4	3064	D4	3102	E10	3148	E5	3315	C10
1250	D12	2016	E3	2061	B4	2103	I11	2122	G10	2500	D12	3006	E6	3046	I3	3065	C3	3103	F10	3255	F12	3320	D10
1300	B10	2017	F2	2062	C2	2104	I11	2123	G10	2501	D11	3007	E2	3047	I5	3066	C4	3105	I9	3256	E12	3321	D10
1500	B11	2018	E3	2063	C2	2105	F11	2125	F10	2502	C12	3008	G3	3048	I4	3067	C4	3106	E9	3300	E10	3322	D10
1570	H10	2019	B2	2064	D2	2106	F11	2140	D5	2503	B12	3009	E4	3049	H5	3070	H8	3109	E11	3301	D11	3323	D10
1700	B7	2040	H5	2065	C2	2107	E11	2141	D5	2504	D12	3010	F5	3050	I5	3071	E4	3110	H10	3302	E10	3325	D9
2000	H4	2041	I5	2066	D4	2108	F11	2253	E12	2550	D8	3011	E5	3051	I5	3072	I8	3111	F10	3303	E11	3326	D10
2001	F5	2042	H4	2070	D4	2109	E10	2300	E10	2610	F8	3012	E2	3052	I5	3073	F5	3112	E11	3304	E11	3327	C9
2003	F4	2043	I5	2071	F6	2110	G12	2301	E10	2611	F8	3013	E2	3053	H6	3074	G7	3117	F11	3305	D12	3328	C9
2004	F3	2044	J5	2072	H7	2111	E11	2302	D11	2612	C6	3014	F7	3054	H6	3075	I8	3118	G9	3306	D11	3360	C10
2005	F3	2045	G5	2080	G6	2112	G12	2303	E11	2702	B8	3015	E5	3055	G5	3080	E3	3119	E9	3307	E9	3361	C10


1
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3
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6
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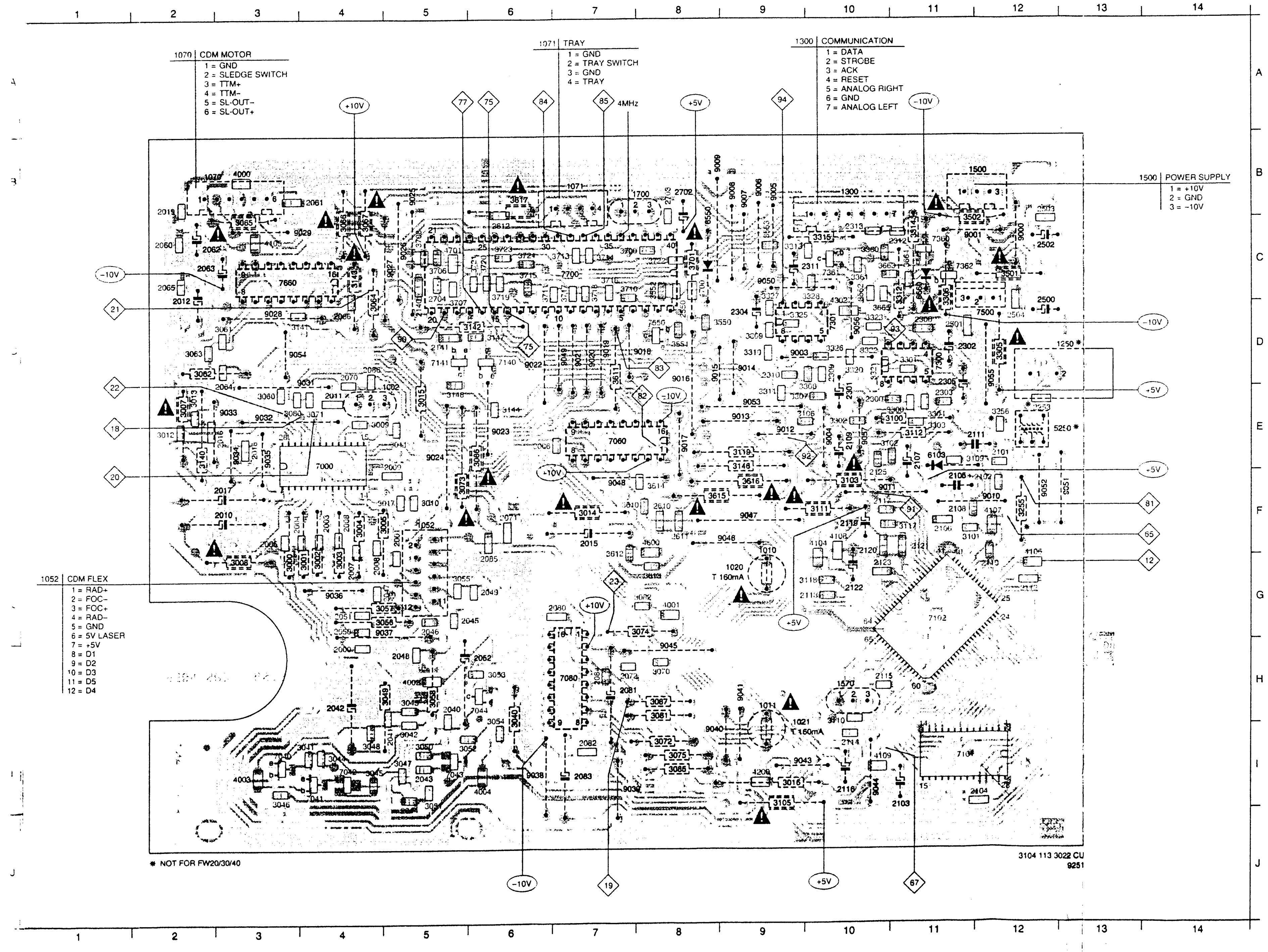
8
A
B
C
D
E
F
G
H
I
J
1070 CDM MOTOR
1 = GND
2 = SLEDGE SWITCH
3 = TTM+
4 = TTM-
5 = SL-OUT-
6 = SL-OUT+
1071 TRAY
1 = GND
2 = TRAY SWITCH
3 = GND
4 = TRAY
1052 CDM FLEX
1 = RAD+
2 = FOC-
3 = FOC+
4 = RAD-
5 = GND
6 = 5V LASER
7 = +5V
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4
+10V
77
75
84
85
4MHz
-5V
-10V
21
22
18
23
90
75
82
83
7660
7700
7060
7000
7080
1700
3617
T 160mA
* NOT FOR FW20/30/40
-10V
19

02	E4	2007	G4	2046	G5	2081	H7	2114	I10	2304	D9	2703	B8	3016	I9	3056	G4	3081	H8	3140	E2	3308	E9	3501	C12	3700	C7
10	F9	2008	F4	2047	G5	2082	I7	2115	H10	2305	D11	2704	C5	3017	F4	3057	G4	3082	G7	3141	D3	3309	D9	3502	C11	3701	C8
11	H9	2008	G4	2048	H5	2083	I7	2116	I10	2306	D11	3000	G3	3040	I6	3058	H5	3085	I8	3142	D5	3310	D9	3550	D8	3706	C5
20	G9	2009	E5	2049	G6	2084	H7	2117	F10	2309	D10	3001	G4	3041	I3	3060	E3	3086	E6	3143	C4	3311	E9	3551	D8	3707	D5
21	I9	2010	F2	2050	G4	2085	G6	2118	G9	2310	D9	3002	G4	3042	I5	3061	D2	3087	H8	3144	E6	3312	D11	3552	C8	3708	C5
52	F5	2011	E4	2051	G4	2086	D4	2119	F10	2311	C9	3003	G4	3043	H5	3062	D2	3100	E10	3146	E9	3313	C9	3553	C9	3710	C7
70	B2	2012	C2	2052	H6	2101	E12	2120	F10	2312	C10	3004	F4	3044	I4	3063	D2	3101	F11	3147	D6	3314	C11	3610	F7	3711	C6
71	B7	2015	F7	2060	C2	2102	F11	2121	F11	2313	C10	3005	F5	3045	I4	3064	D4	3102	E10	3148	E5	3315	C10	3611	D7	3713	C6
250	D12	2016	E3	2061	B4	2103	I11	2122	G10	2500	D12	3006	E6	3046	I3	3065	C3	3103	F10	3255	F12	3320	D10	3612	F7	3714	C7
1300	B10	2017	F2	2062	C2	2104	I11	2123	G10	2501	D11	3007	E2	3047	I5	3066	C4	3105	I9	3256	E12	3321	D10	3613	G8	3715	C6
1500	B11	2018	E3	2063	C2	2105	F11	2125	F10	2502	C12	3008	G3	3048	I4	3067	C4	3106	E9	3300	E10	3322	D10	3614	F8	3716	C7
570	H10	2019	B2	2064	D2	2106	F11	2140	D5	2503	B12	3009	E4	3049	H5	3070	H8	3109	E11	3301	D11	3323	D10	3615	F8	3717	C7
700	B7	2040	H5	2065	C2	2107	E11	2141	D5	2504	D12	3010	F5	3050	I5	3071	E4	3110	H10	3302	E10	3325	D9	3616	F9	3718	C7
00	H4	2041	I5	2066	D4	2108	F11	2253	E12	2550	D8	3011	E5	3051	I5	3072	I8	3111	F10	3303	E11	3326	D10	3617	B6	3719	C6
01	F5	2042	H4	2070	D4	2109	E10	2300	E10	2610	F8	3012	E2	3052	I5	3073	F5	3112	E11	3304	E11	3327	C9	3662	C10	3720	C6
03	F4	2043	I5	2071	F6	2110	G12	2301	E10	2611	F8	3013	E2	3053	H6	3074	G7	3117	F11	3305	D12	3328	C9	3663	C10	3721	C6
04	F3	2044	J5	2072	H7	2111	E11	2302	D11	2612	C6	3014	F7	3054	H6	3075	I8	3118	G9	3306	D11	3360	C10	3664	C11	3722	C8
05	F3	2045	G5	2080	G6	2112	G12	2303	E11	2702	B8	3015	E5	3055	G5	3080	E3	3119	E9	3307	E9	3361	C10	3665	D10	3723	C6

3724	C6	6103	E11	7361	C10	9013	E9	9032	E3	9051	F13
4000	B3	6550	C8	7362	C11	9014	D9	9033	E3	9052	F12
4001	G8	6660	C11	7500	D12	9015	D8	9034	E3	9053	E9
4002	H5	7000	E4	7550	D8	9016	D8	9035	E3	9054	D3
4003	I3	7040	I3	7660	C3	9017	E8	9036	G4	9055	E12
4004	I6	7041	I4	7700	C7	9018	D7	9037	G4	9056	D10
4104	F10	7042	I4	9000	C12	9019	D7	9038	I6	9057	E10
4105	C3	7043	I5	9001	C11	9020	D7	9039	I7		
4106	F12	7044	H6	9003	D9	9021	D7	9040	I8		
4107	F12	7060	E7	9004	E10	9022	D6	9041	H9		
4108	F10	7080	H7	9005	B9	9023	E6	9043	I9		
4109	I10	7101	I11	9006	B9	9024	E5	9044	I10		
4200	I9	7102	G11	9007	B9	9025	B5	9045	H8		
4302	D10	7140	D6	9008	B9	9026	C5	9046	F8		
4600	F8	7141	D5	9009	B8	9027	C5	9047	F9		
4700	C8	7300	D11	9010	F12	9028	D3	9048	F7		
4701	C5	7301	D10	9011	F10	9029	C3	9049	D7		
5250	E12	7360	C11	9012	E9	9031	D3	9050	C9		


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
+10V
77
75
84
85
4MHz
+5V
94
-10V
21
22
18
20
-10V
-5V
+5V
81
65
12
23
+10V
+5V
1020
T 160mA
1021
T 160mA
7000
7080
7102
7060
-10V
19
+5V
87
3104 113 3022 CU
9251

1070 | CDM MOTOR
1 = GND
2 = SLEDGE SWITCH
3 = TTM+
4 = TTM-
5 = SL-OUT-
6 = SL-OUT+

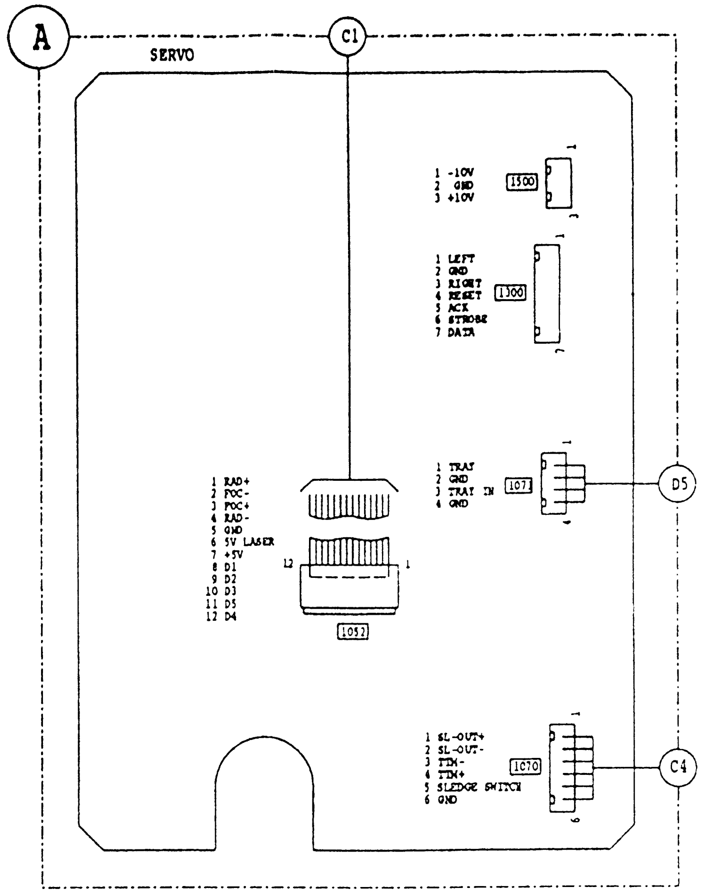
1071 | TRAY
1 = GND
2 = TRAY SWITCH
3 = GND
4 = TRAY

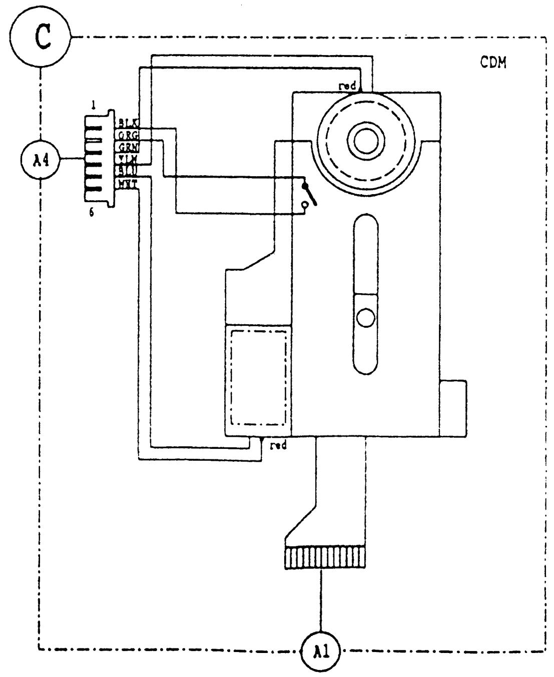
1300 | COMMUNICATION
1 = DATA
2 = STROBE
3 = ACK
4 = RESET
5 = ANALOG RIGHT
6 = GND
7 = ANALOG LEFT

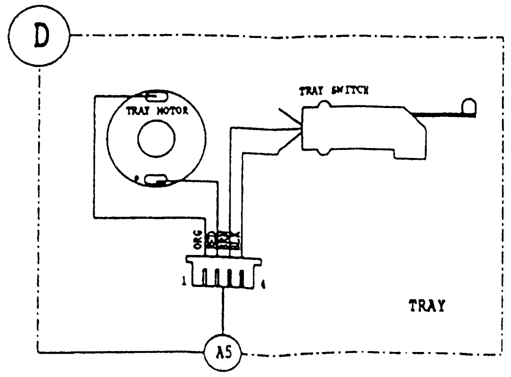
1500 | POWER SUPPLY
1 = +10V
2 = GND
3 = -10V

1052 | CDM FLEX
1 = RAD+
2 = FOC-
3 = FOC+
4 = RAD-
5 = GND
6 = 5V LASER
7 = +5V
8 = D1
9 = D2
10 = D3
11 = D5
12 = D4

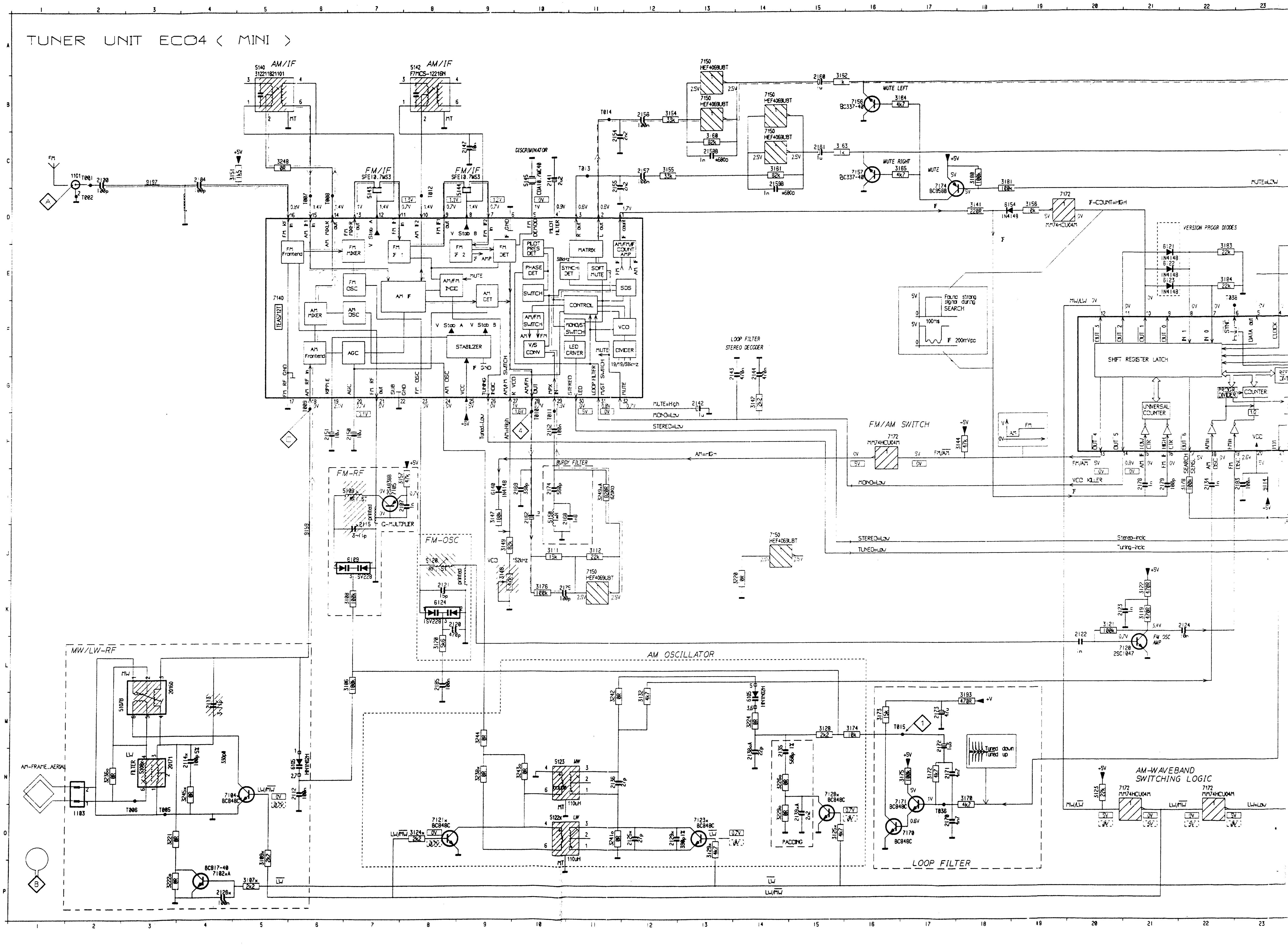
* NOT FOR FW20/30/40

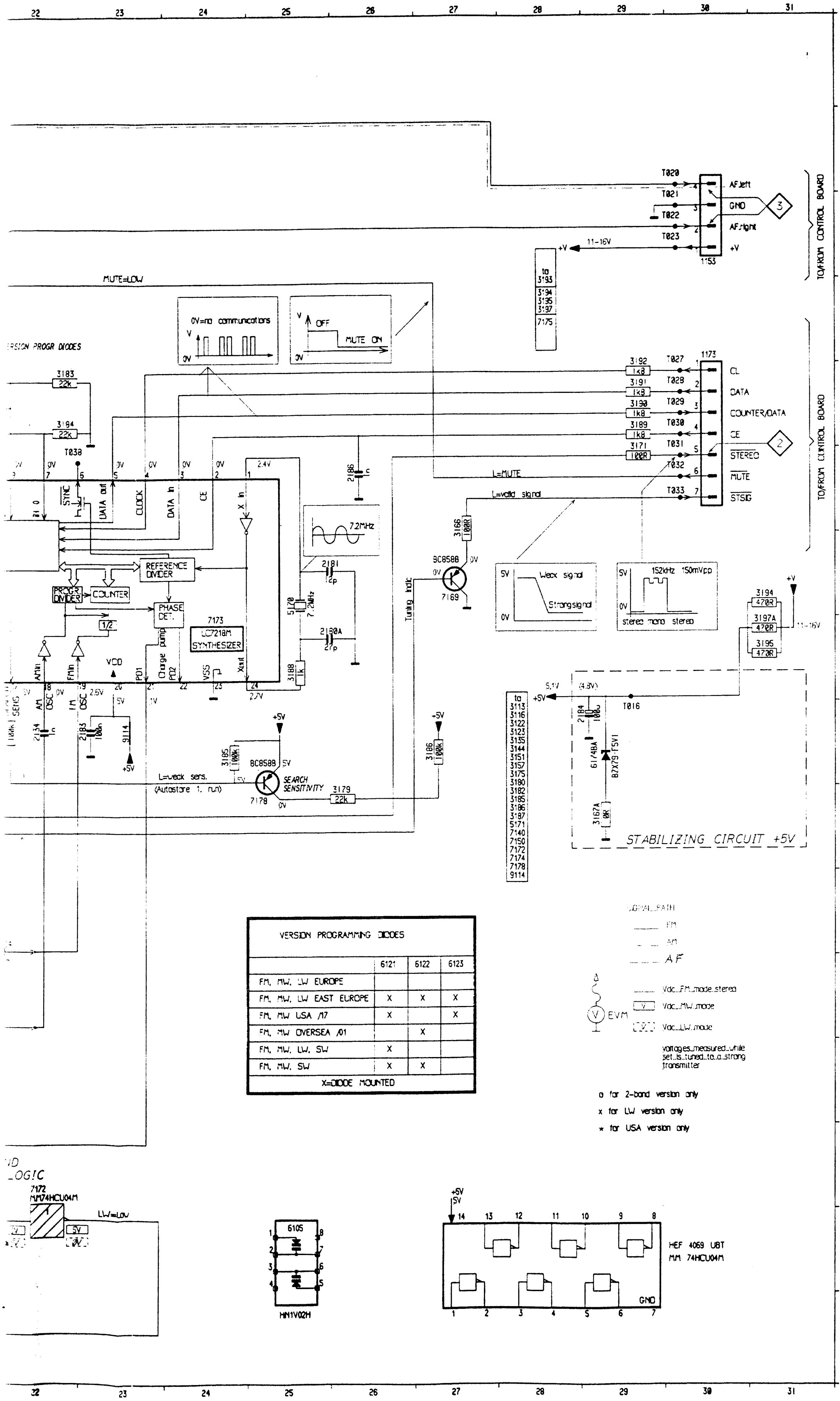

A
C1
SERVO
1 -10V
2 GND
3 +10V
1500
1 LEFT
2 GND
3 RIGHT
4 RESET
5 ACK
6 STROBE
7 DATA
1300
1 TRAY
2 GND
3 TRAY IN
4 GND
1071
D5
1 RAD+
2 FOC-
3 FOC+
4 RAD-
5 GND
6 5V LASER
7 +5V
8 D1
9 D2
10 D3
11 D5
12 D4
1052
1 SL-OUT+
2 SL-OUT-
3 TTM-
4 TTM+
5 SLEDGE SWITCH
6 GND
1070
C4


C
CDM
A4
red
BLK
ORG
GRN
red
A1


D
TRAY MOTOR
TRAY SWITCH
ORG
TRAY
A5

ECO4 CIRCUIT DIAGRAM - For all versions produced from wk 249 onwards except /22.


TUNER UNIT ECO4 (MINI)
AM/IF
AM/IF
FM/IF
FM/IF
DISCRIMINATOR
MUTE LEFT
MUTE RIGHT
MUTE
F-COUNT=HIGH
VERSION PROGR DIODES
Found strong signal during SEARCH
100ms
F 200mVpc
SHIFT REGISTER LATCH
UNIVERSAL COUNTER
COUNTER
MW/LW
FM/AM SWITCH
LOOP FILTER STEREO DECODER
MUTE=High
MONO=Low
STEREO=Low
AM=HIGH
MONO=Low
STEREO=Low
TUNED=Low
Stereo-indic
Tuning-indic
FM-RF
C-MULTIPLIER
FM-OSC
BURDY FILTER
VCO
MW/LW-RF
AM OSCILLATOR
LOOP FILTER
Tuned down
Tuned up
PADDING
FM OSC AMP
AM-WAVEBAND SWITCHING LOGIC
AM-FRAME AERIAL
7140
TEA5712T
FM Frontend
FM MIXER
FM IF 1
FM IF 2
FM DET
PILOT PRES DET
MATRIX
AM/FM/IF COUNT AMP
PHASE DET
SYNCH DET
SOFT MUTE
SDS
AM/FM INDIC
AM DET
FM OSC
AM IF
SWITCH
CONTROL
AM MIXER
AM OSC
AM/FM SWITCH
MONO/ST SWITCH
VCO
V/S CONV
LED DRIVER
MUTE
DIVIDER 19/19/38kHz
AM Frontend
AGC
STABILIZER
LW
MW
FILTER
5123 MW
5122 LW
110uH
7150 HEF4069UBT
7172 MM74HCU04M
LW/MW
LW


22
23
24
25
26
27
28
29
30
31
T020
T021
T022
T023
AF.left
GND
AF.right
+V
1153
3
TO/FROM CONTROL BOARD
+V
11-16V
to
3193
3194
3195
3197
7175
MUTE=LOW
0V=no communications
V
0V
OFF
MUTE ON
ERSION PROGR DIODES
3183
22k
3194
22k
T038
3192
1k8
3191
1k8
3190
1k8
3189
1k8
3171
100R
T027
T028
T029
T030
T031
T032
T033
1173
CL
DATA
COUNTER/DATA
CE
STEREO
MUTE
STSIG
2
L=MUTE
L=valid signal
2.4V
2186
SYNC
DATA out
CLOCK
DATA in
CE
X in
7.2MHz
2181
2p
5170
7.2MHz
2180A
27p
3188
1k
REFERENCE DIVIDER
PROGR. DIVIDER
COUNTER
PHASE DET.
1/2
7173
LC7218M
SYNTHESIZER
VCO
AM in
FM in
PD1
Charge pump
PD2
VSS
Xout
AM OSC
FM OSC
SENS
2134
2183
100n
9114
+5V
2.5V
5V
2.7V
3166
100R
BC858B
7169
Tuning indic
5V
Weak signal
Strong signal
0V
152kHz 150mVpp
stereo mono stereo
+V
3194
470R
3197A
470R
3195
470R
11-16V
5.1V
+5V
(4.8V)
2184
100n
T016
6174BA
BZX79-T5V1
3167A
0R
STABILIZING CIRCUIT +5V
to
3113
3116
3122
3123
3135
3144
3151
3157
3175
3180
3182
3185
3186
3187
5171
7140
7150
7172
7174
7178
9114
+5V
3185
100k
BC858B
5V
L=weak sens.
(Autostore 1. run)
SEARCH SENSITIVITY
7178
3179
22k
3186
100k
+5V
SIGNAL PATH
FM
AM
AF
EVM
V
Vdc FM mode stereo
Vdc MW mode
Vdc LW mode
voltages measured while set is tuned to a strong transmitter
LOGIC
7172
MM74HCU04M
LW=LOW
5V
6105
HN1V02H
+5V
5V
14
13
12
11
10
9
8
1
2
3
4
5
6
7
GND
HEF 4069 UBT
MM 74HCU04M
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

VERSION PROGRAMMING DIODES

	6121	6122	6123
FM, MW, LW EUROPE			
FM, MW, LW EAST EUROPE	X	X	X
FM, MW USA /17	X		X
FM, MW OVERSEA /01		X	
FM, MW, LW, SW	X		
FM, MW, SW	X	X	
X=DIODE MOUNTED			

voltages measured while set is tuned to a strong transmitter

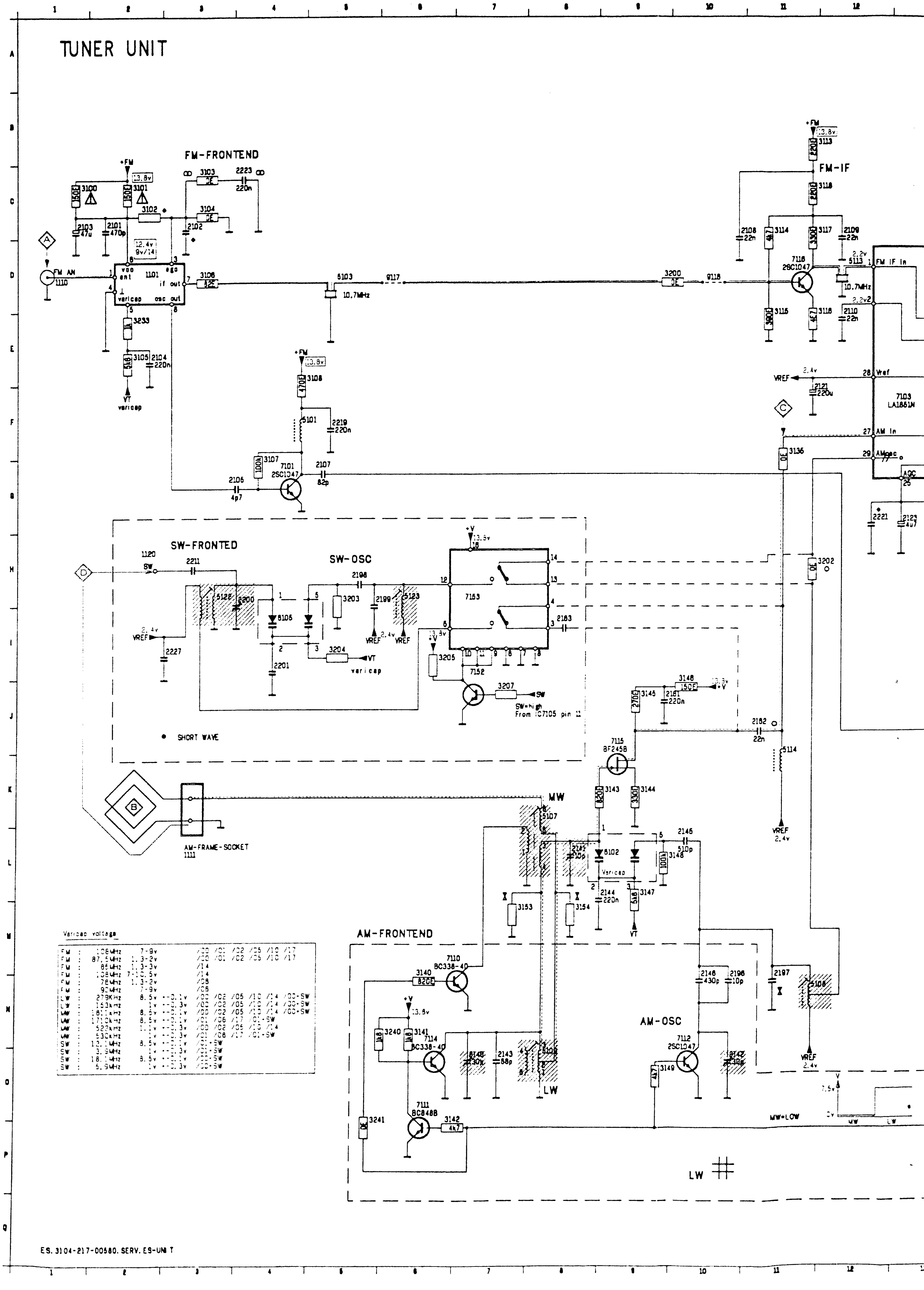
o for 2-band version only

x for LW version only

* for USA version only

1101	C 2
1103	O 2
1153	C30
1173	D30
2100	C 2
2104	C 4
2107	I 8
2112	N 6
2113	M 4
2114x	N 4
2115	J 7
2120	K 8
2121	K 8
2122	K20
2123	K20
2124	K22
2125x	O12
2126x	P 4
2129x	O12
2134	I22
2135	N14
2136	N11
2138o	N14
2139x	O15
2141	C10
2142	G13
2143	G13
2144	G14
2147	C 9
2150	H 7
2151	H 6
2152	H10
2154	C11
2155	C11
2156	B12
2157	C12
2158B	C13
2159B	C14
2160	B15
2161	C15
2162	I10
2168	I10
2169	I10
2170	O17
2171	N17
2172	M17
2173	M17
2174	I10
2175	K10
2178	I21
2179	I21
2180A	H25
2181	G25
2183	I23
2184	I29
2185	L 8
2186	F26
2999	P23
3106	L 7
3107x	P 5
3108	K 7
3109x	O 5
3111	J10
3112	J11
3119	K21
3120	L 8
3121	K20
3122	K21
3123	N20
3124x	O 8
3125x	O15
3128	M15
3129x	O13
3132	M12
3141	D18
3142	G14
3144	H18
3147	I 9
3148	J 9
3149	J 9
3151	C 4
3154	B12
3155	C12
3156	D19
3157	I 7
3160	C13
3161	C14
3162	B15
3163	C15
3164	B16
3165	C16
3166	F27
3167A	J29
3170	N18
3171	F29
3172	N17
3173	M16
3174	M16
3175	N17
3176	K10
3178	I22
3179	J25
3180	C18
3181	C18
3183	E22
3184	E22
3185	I24
3186	I27
3188	H25
3189	E29
3190	E29
3191	E29
3192	E29
3193	M18
3194	G31
3195	H31
3197A	H31
3220	J14
3221	O 3
3222o	P 3
3224	M14
3226o	N14
3229o	O14
3236o	N 2
3238x	N 9
3241o	O11
3242	M11
3243o	N10
3244	M 9
3245x	N 4
3248	C 5
3249x	I11
5107B	M 2
5108x	N 3
5109	I 7
5120	J 8
5122x	O10
5123	N10
5140	A 5
5142	A 8
5143	D 7
5144	D 9
5145	C10
5150	I10
5170	G25
6105	O25
6109	J 7
6121	E21
6122	E21
6123	E21
6124	K 8
6140	I 9
6154	O18
6174B	I29
7102x	P 4
7104x	N 5
7105	I 7
7120	L20
7121x	O 8
7123x	O13
7128x	N15
7140	E 5
7150	J14
7150	J11
7150	A13
7150	C14
7150	B14
7150	B13
7156	B16
7157	C16
7169	G27
7170	O17
7171	O17
7172	H16
7172	O20
7172	O20
7172	K22
7172	K20
7172	O22
7173	K24
7174	O17
7178	J25
9114	I23
9197	C 3
9199	J 6
T001	C 2
T002	D 2
T005	O 3
T006	O 3
T007	D 6
T008	D 6
T009	G 6
T010	H10
T011	H10
T012	C 8
T013	C11
T014	B11
T015	M16
T016	I29
T020	B29
T021	C29
T022	C29
T023	C29
T027	D30
T028	E30
T029	E30
T030	E30
T031	E30
T032	F30
T033	F30
T036	O17
T038	F22

TUNER 92 CIRCUIT DIAGRAM - For /22 and other versions produced before wk 249.

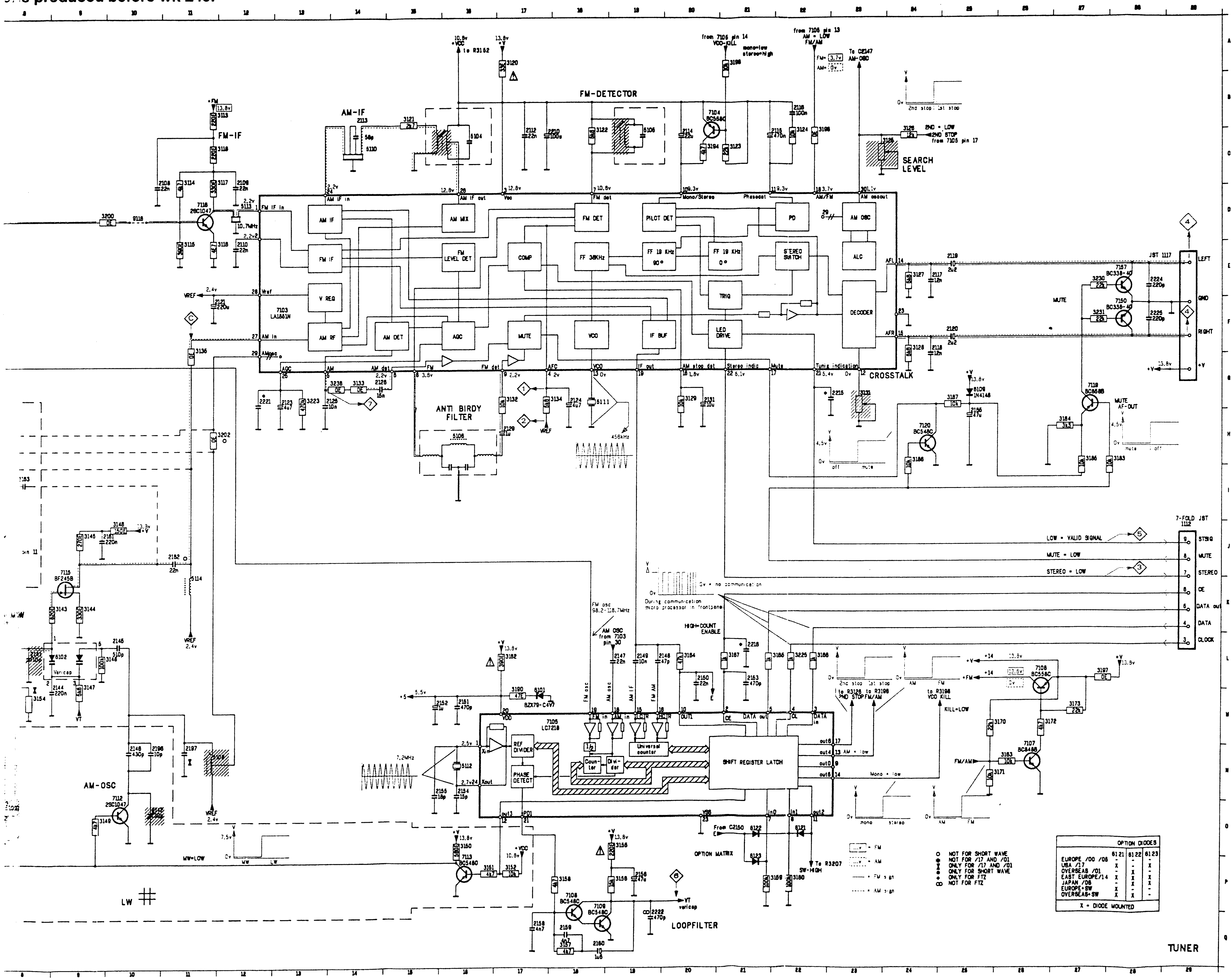


TUNER UNIT
FM-FRONTEND
FM-IF
SW-FRONTED
SW-OSC
AM-FRONTEND
AM-OSC
MW
LW
FM AN 1110
1101
vco ant agc if out varicap osc out
5103 10.7MHz
9117
9118
3200
7116 2SC1047
5113 10.7MHz
FM IF In
Vref
7103 LA1861N
AM In
AMosc
AGC
VREF 2.4v
7101 2SC1047
VT varicap
7153
7152
SW=high From IC7105 pin 11
SHORT WAVE
7115 BF245B
AM-FRAME-SOCKET 1111
5107
6102
Varicap
7110 BC338-40
7114 BC338-40
7111 BC848B
7112 2SC1047
MW=LOW
ES. 3104-217-00580. SERV. ES-UNIT

Varicap voltage

FM	:	108MHz	7-9v		/00 /01 /02 /05 /10 /17
FM	:	87,5MHz	1.3-2v		/00 /01 /02 /05 /10 /17
FM	:	85MHz	1.3-3v		/14
FM	:	108MHz	7-10.5v		/14
FM	:	78MHz	1.3-2v		/08
FM	:	90MHz	7-9v		/06
LW	:	279KHz	8.5v	+-0.1v	/00 /02 /05 /10 /14 /00+SW
LW	:	153kHz	1v	+-0.3v	/00 /02 /05 /10 /14 /00+SW
MW	:	1611kHz	8.5v	+-0.1v	/00 /02 /05 /10 /14 /00+SW
MW	:	1710kHz	8.5v	+-0.1v	/01 /06 /17 /01+SW
MW	:	522kHz	1.1v	+-0.3v	/00 /02 /05 /10 /14
MW	:	530kHz	1v	+-0.3v	/01 /08 /17 /01+SW
SW	:	12.1MHz	8.5v	+-0.1v	/01+SW
SW	:	3.9MHz	1v	+-0.3v	/01+SW
SW	:	18.1MHz	8.5v	+-0.1v	/00+SW
SW	:	5.9MHz	1v	+-0.3v	/00+SW

s produced before wk 249.

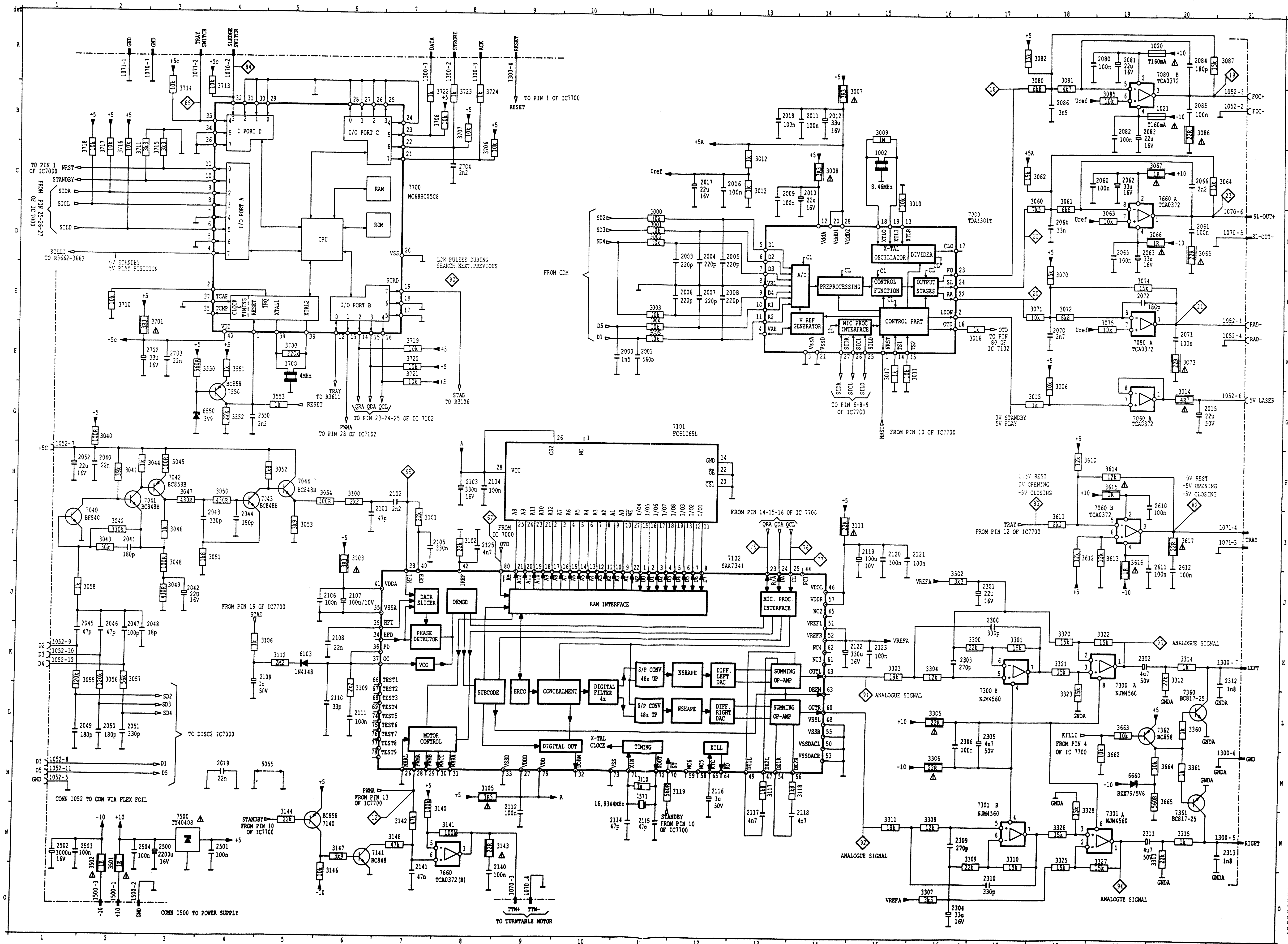

FM-DETECTOR
AM-IF
FM-IF
AM IF
AM MIX
FM DET
PILOT DET
PD
AM OSC
FM IF
FM LEVEL DET
COMP
FF 38KHz
FF 19 KHz 90°
FF 19 KHz 0°
STEREO SWITCH
ALC
V REG
TRIG
DECODER
AM RF
AM DET
AGC
MUTE
VCO
IF BUF
LED DRIVE
7103 LA1851N
CROSSTALK
ANTI BIRDY FILTER
SEARCH LEVEL
JST 1117
LEFT
GND
RIGHT
+V
MUTE
7-FOLD JST 1112
LOW = VALID SIGNAL
MUTE = LOW
STEREO = LOW
STSIG
STEREO
CE
DATA out
DATA
CLOCK
HIGH=COUNT ENABLE
During communication micro processor in frontpanel
7105 LC7218
REF DIVIDER
PHASE DETECT
Universal counter
Counter
Divider
SHIFT REGISTER LATCH
AM-OSC
LW
MW=LOW
LOOPFILTER
OPTION MATRIX
SW-HIGH
TUNER

- ○ NOT FOR SHORT WAVE
- ✱ NOT FOR /17 AND /01
- ⧗ ONLY FOR /17 AND /01
- ● ONLY FOR SHORT WAVE
- ◆ ONLY FOR FTZ
- ∞ NOT FOR FTZ

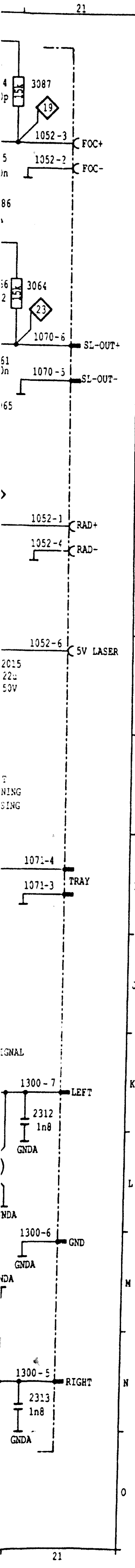
OPTION DIODES	6121	6122	6123
EUROPE /00 /05	-	-	-
USA /17	X	-	X
OVERSEAS /01	-	X	-
EAST EUROPE/14	X	X	X
JAPAN /08	-	X	X
EUROPE+SW	X	-	-
OVERSEAS+SW	X	X	-
X = DIODE MOUNTED			

1101	D 2	7101	G 4
2101	C 2	7103	F13
2102	C 3	7104	B20
2103	C 1	7105	M18
2104	E 2	7106	L28
2105	G 4	7107	M28
2107	G 5	7108	P18
2108	C10	7109	P18
2109	C12	7110	M 7
2110	D12	7111	O 8
2112	B17	7112	N10
2113	B14	7113	O18
2114	C20	7114	N 6
2115	C21	7115	J 9
2116	B22	7116	D11
2117	E24	7119	G27
2118	F24	7120	H24
2119	E25	7150	F28
2120	F25	7152	I 7
2121	F11	7153	H 7
2123	G13	7157	E28
2124	O18	9116	D10
2125	O13	9117	D 6
2126	O14		
2129	H17		
2131	G20		
2140	O 7		
2141	L 8		
2142	O10		
2143	O 7		
2144	L 8		
2145	L10		
2146	M10		
2147	L18		
2148	L19		
2149	L18		
2150	L20		
2151	M16		
2152	M15		
2153	L21		
2154	N16		
2155	N15		
2156	P19		
2158	Q17		
2159	Q18		
2160	Q18		
2161	J 9		
2162	J11		
2163	I 8		
2165	M25		
2166	M10		
2197	M11		
2198	H 5		
2199	H 5		
2200	H 3		
2201	I 4		
2210	C17		
2211	H 3		
2215	O22		
2216	L21		
2218	F 5		
2221	G12		
2222	P19		
2223	C 4		
2224	E28		
2225	F28		
2227	I 2		
3100	C 1		
3101	C 2		
3102	C 2		
3103	C 3		
3104	C 3		
3105	E 2		
3106	D 3		
3107	F 4		
3108	E 4		
3113	B11		
3114	C11		
3115	D11		
3116	D11		
3117	C11		
3118	C11		
3120	A17		
3121	B15		
3122	B18		
3123	C21		
3124	B22		
3126	B24		
3127	E24		
3128	F24		
3129	O20		
3132	G17		
3133	G14		
3134	G17		
3135	F11		
3140	M 6		
3141	N 6		
3142	O 7		
3143	K 8		
3144	K 9		
3145	J 9		
3146	I10		
3147	L 9		
3148	L 9		
3149	O 9		
3150	O16		
3151	P16		
3152	P17		
3153	M 7		
3154	M 8		
3155	O19		
3156	P19		
3157	Q18		
3158	P18		
3159	P21		
3160	P22		
3162	L17		
3163	N26		
3164	L20		
3165	L21		
3166	L22		
3167	L21		
3170	M25		
3171	N25		
3172	M26		
3173	M27		
3183	H27		
3184	H27		
3185	H27		
3186	H24		
3187	G25		
3190	L17		
3194	C20		
3196	B22		
3197	L27		
3198	A21		
3200	D10		
3202	H11		
3203	H 5		
3204	I 5		
3205	I 8		
3207	J 7		
3223	G13		
3225	L22		
3230	E27		
3231	F27		
3233	E 2		
3236	G14		
3240	N 5		
3241	O 5		
5104	C18		
5105	B19		
5106	H18		
5107	K 8		
5111	G18		
5112	N16		
6101	L17		
6102	L 8		
6105	I 4		
6109	O25		
6121	O22		
6122	O21		
6123	O21		

CD CIRCUIT DIAGRAM

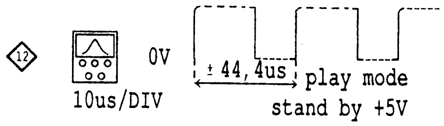

7700 MC68HC05C8
I PORT D
I/O PORT C
I/O PORT A
I/O PORT B
CPU
RAM
ROM
CLOCK TIMING
RESET
XTAL1
XTAL2
TRAY SWITCH
SLEDGE SWITCH
DATA
STROBE
ACK
RESET
TO PIN 1 OF IC7700
TO PIN 1 OF IC7000
NRST
STANDBY
SIDA
SICL
SILD
FROM PIN 25-26-27 OF IC 7000
KILL1 TO R3662-3663
0V STANDBY 5V PLAY POSITION
LOW PULSES DURING SEARCH NEXT, PREVIOUS
4MHz
BC858 7550
TRAY TO R3611
PWMA TO PIN 28 OF IC7102
TO PIN 23-24-25 OF IC 7102
STAD TO R3106
7300 TDA1301T
FROM CDM
A/D
PREPROCESSING
CONTROL FUNCTION
OUTPUT STAGES
X-TAL OSCILLATOR
DIVIDER
V REF GENERATOR
MIC PROC INTERFACE
CONTROL PART
8.46MHz
TO PIN 6-8-9 OF IC7700
FROM PIN 10 OF IC7700
TO PIN 80 OF IC 7102
7080 B TCA0372
7660 A TCA0372
7090 A TCA0372
7060 A TCA0372
FOC+
FOC-
SL-OUT+
SL-OUT-
RAD+
RAD-
3V LASER
0V STANDBY 5V PLAY
7101 FC61C65L
7102 SAA7341
DATA SLICER
DEMOD
PHASE DETECTOR
VCO
RAM INTERFACE
MIC. PROC. INTERFACE
SUBCODE
ERCO
CONCEALMENT
DIGITAL FILTER 4x
S/P CONV 48x UP
NSHAPE
DIFF. LEFT DAC
DIFF. RIGHT DAC
SUMMING OP-AMP
MOTOR CONTROL
DIGITAL OUT
X-TAL CLOCK
TIMING
KILL
16,9344MHz
FROM PIN 14-15-16 OF IC 7700
FROM PIN 19 OF IC7700
FROM IC 7000
1N4148
7040 BF840
7041 BC848B
7042 BC858B
7043 BC848B
7044 BC848B
TO DISC2 IC7000
CONN 1052 TO CDM VIA FLEX FOIL
7500 TY40408
CONN 1500 TO POWER SUPPLY
STANDBY FROM PIN 10 OF IC7700
BC858 7140
7141 BC848
7660 TCA0372 (B)
PWMA FROM PIN 13 OF IC7700
STANDBY FROM PIN 10 OF IC7700
TTM+
TTM-
TO TURNTABLE MOTOR
2.5V REST 0V OPENING -5V CLOSING
0V REST +5V OPENING -5V CLOSING
TRAY FROM PIN 12 OF IC7700
7060 B TCA0372
TRAY
ANALOGUE SIGNAL
7300 B NJM4560
7300 A NJM4560
7301 B NJM4560
7301 A NJM4560
LEFT
RIGHT
GND
KILLI FROM PIN 4 OF IC 7700
7362 BC858
7360 BC817-25
7361 BC817-25
BZX79/5V6
VREFA
GNDA
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H I J K L M N O

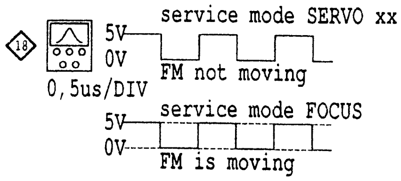
1002	C15
1020	A20
1021	B20
1052	K 1
1052	K 1
1052	M 1
1052	M 1
1052	K 1
1052	M 1
1052	H 1
1052	B21
1052	G21
1052	F21
1052	E21
1052	B21
1070	O 9
1070	O 9
1070	A 4
1070	A 2
1070	D21
1070	D21
1071	A 3
1071	A 2
1071	I21
1071	I21
1300	A 9
1300	A 8
1300	A 8
1300	A [illegible]
1300	K21
1300	N21
1300	M21
1500	O 2
1500	O 2
1500	O 2
1570	M11
1700	F 5
2000	F11
2001	F11
2003	D12
2004	D12
2005	D12
2006	E12
2007	E12
2008	E12
2009	C13
2010	C14
2011	B14
2012	B14
2015	G20
2016	C12
2017	C12
2018	B13
2019	M 4
2040	H 2
2041	I 2
2042	J 3
2043	I 4
2044	I 4
2045	K 1
2046	K 2
2047	K 2
2048	K 3
2049	L 1
2050	L 2
2051	L 2
2052	H 1
2060	C18
2061	D20
2062	C19
2063	D19
2064	D18
2065	D19
2066	C20
2070	F18
2071	F20
2072	E19
2080	A19
2081	A19
2082	B19
2083	B19
2084	A20
2085	B20
2086	B18
2101	I 6
2102	H 7
2103	H 8
2104	H 8
2105	I 7
2106	J 6
2107	J 6
2108	K 6
2109	K 5
2110	L 6
2111	L 6
2112	N 9
2114	N11
2115	N11
2116	M12
2117	N13
2118	N14
2119	I15
2120	I15
2121	I15
2122	K14
2123	K15
2125	I 8
2140	O 9
2141	O 7
2300	J17
2301	J17
2302	K19
2303	K16
2304	O16
2305	L17
2306	L16
2309	N16
2310	O17
2311	N19
2312	K21
2313	N21
2500	N 3
2501	N 4
2502	N 1
2503	N 2
2504	N 3
2550	G 4
2610	H20
2611	I20
2612	I20
2702	F 2
2703	F 3
2704	C 8
3000	D11
3001	D11
3002	D11
3003	E11
3004	E11
3005	F11
3006	F18
3007	B14
3008	C14
3009	B15
3010	C15
3011	F16
3012	C13
3013	C13
3014	G20
3015	G18
3016	F16
3017	F15
3040	G 2
3041	H 2
3042	I 2
3043	I 2
3044	H 3
3045	H 3
3046	I 3
3047	H 3
3048	J 3
3049	J 3
3050	H 4
3051	I 4



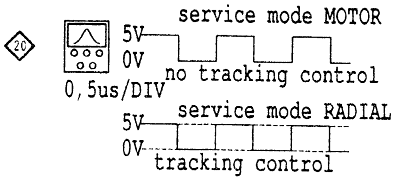
3104 118 01001S-A
9301

1002	C15	3052	H 5
1020	A20	3053	I 5
1021	B20	3054	H 6
1052	K 1	3055	L 2
1052	K 1	3056	K 2
1052	M 1	3057	K 2
1052	M 1	3058	J 2
1052	K 1	3060	C18
1052	M 1	3061	C18
1052	H 1	3062	C17
1052	B21	3063	D19
1052	C21	3064	C21
1052	F21	3065	D20
1052	E21	3066	D19
1052	B21	3067	C19
1070	O 9	3070	E18
1070	O 9	3071	E18
1070	A 4	3072	E18
1070	A 2	3073	F20
1070	D21	3074	E19
1070	D21	3075	E19
1071	A 3	3080	A18
1071	A 2	3081	A18
1071	I21	3082	A17
1071	I21	3085	B19
1300	A 9	3086	B20
1300	A 8	3087	A21
1300	A 8	3100	H 6
1300	A 7	3101	I 7
1300	K21	3102	I 8
1300	N21	3103	I 6
1300	M21	3105	M 8
1500	O 2	3106	K 5
1500	O 2	3109	L 6
1500	O 2	3110	M11
1570	M11	3111	I14
1700	F 5	3112	K 5
2000	F11	3117	M13
2001	F11	3118	M14
2003	D12	3119	M12
2004	D12	3140	N 8
2005	D12	3141	N 8
2006	E12	3142	N 7
2007	E12	3143	N 9
2008	E12	3144	N 5
2009	C13	3146	O 6
2010	[illegible]	3147	N 6
2011	B14	3148	N 7
2012	B14	3300	K16
2015	G20	3301	K17
2016	C12	3302	J16
2017	C12	3303	K15
2018	B13	3304	K16
2019	M 4	3305	L16
2040	H 2	3306	M16
2041	I 2	3307	O16
2042	J 3	3308	N16
2043	I 4	3309	N16
2044	I 4	3310	N17
2045	K 1	3311	N15
2046	K 2	3312	K20
2047	K 2	3313	N20
2048	K 3	3314	K20
2049	L 1	3315	N20
2050	L 2	3320	K18
2051	L 2	3321	K18
2052	H 1	3322	K19
2060	C18	3323	L18
2061	D20	3325	N18
2062	C19	3326	N18
2063	D19	3327	N19
2064	D18	3328	M18
2065	D19	3360	L20
2066	C20	3361	M20
2070	F18	3501	O 2
2071	F20	3502	O 2
2072	E19	3550	F 3
2080	A19	3551	F 4
2081	A19	3552	G 4
2082	B19	3553	G 5
2083	B19	3610	H18
2084	A20	3611	I18
2085	B20	3612	I18
2086	B18	3613	I19
2101	I 6	3614	H19
2102	H 7	3615	H19
2103	H 8	3616	I19
2104	H 8	3617	I20
2105	I 7	3662	M19
2106	J 6	3663	L19
2107	J 6	3664	M20
2108	K 6	3665	M20
2109	K 5	3700	F 5
2110	L 6	3701	F 3
2111	L 6	3706	C 8
2112	H 9	3707	B 8
2114	H11	3708	B 7
2115	H11	3710	E 2
2116	M12	3711	C 2
2117	N13	3713	B 4
2118	N14	3714	B 3
2119	I15	3715	C 3
2120	I15	3716	C 2
2121	I15	3717	C 2
2122	K14	3718	C 1
2123	K15	3719	F 7
2125	[illegible]	3720	F 7
2140	O 9	3721	F 7
2141	O 7	3722	B 7
2300	J17	3723	B 8
2301	J17	3724	B 8
2302	K19	6103	K 5
2303	K16	6550	G 4
2304	O16	6660	M19
2305	L17	7000	D16
2306	L16	7040	I 2
2309	N16	7041	I 2
2310	O17	7042	H 3
2311	N19	7043	H 4
2312	K21	7044	H 5
2313	N21	7060	I19
2500	N 3	7060	G19
2501	N 4	7080	F19
2502	N 1	7080	A20
2503	N 2	7101	G11
2504	N 3	7102	I12
2550	G 4	7140	N 6
2610	H20	7141	N 6
2611	I20	7300	L17
2612	I20	7300	K19
2702	F 2	7301	M17
2703	F 3	7301	N19
2704	C 8	7360	L20
3000	D11	7361	M20
3001	D11	7362	L20
3002	D11	7500	N 3
3003	E11	7550	G 4
3004	E11	7660	O 8
3005	F11	7660	C20
3006	F18	7700	C 7
3007	B14	9055	M 5
3008	C14		
3009	B15		
3010	C15		
3011	F16		
3012	C13		
3013	C13		
3014	C20		
3015	C18		
3016	F16		
3017	E15		
3040	G 2		
3041	E 2		
3042	I 2		
3043	I 2		
3044	E 3		
3045	F 3		
3046	I 3		
3047	F 3		
3048	[illegible]		
3049	[illegible]		
3050	F 4		
3051	I 4		

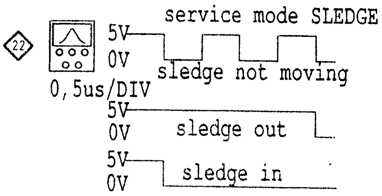




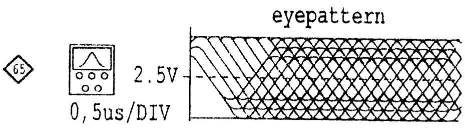
19 ACTIVITY DURING PLAY



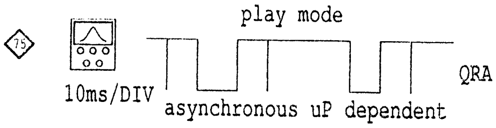
21 ACTIVITY DURING PLAY

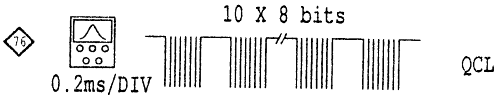


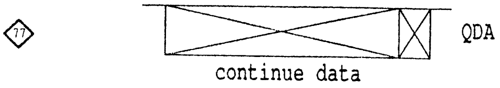
23 SERVICE POSITION SLEDGE
SL-OUT -2,6V
SL-IN +2,6V



67 SERVICE POSITION SLEDGE,FOCUS,MOTOR: 0V
SERVICE POSITION RADIAL: 5V



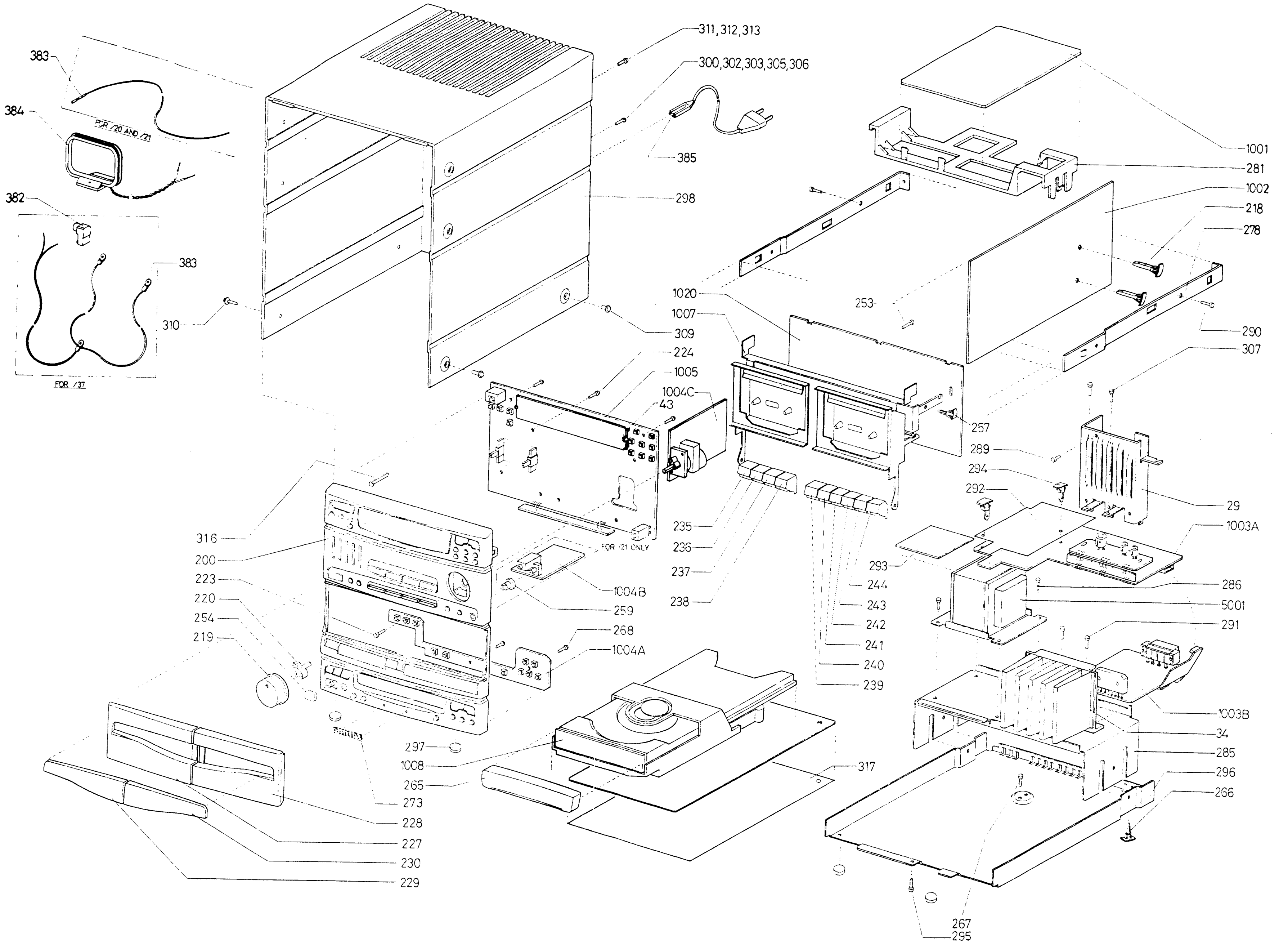




84 SERVICE POSITION SLEDGE
0V REST POSITION
+5V WHEN SLEDGE IS MOVING

85 +5V REST POSITION OF TRAY
0V WHEN OPENING OR CLOSING

CENTRE UNIT EXPLODED VIEW


383
384
FOR /20 AND /21
382
383
FOR /37
310
311, 312, 313
300, 302, 303, 305, 306
385
298
309
1001
281
1002
218
278
253
290
307
1020
1007
224
1005
1004C
43
257
289
294
29
292
1003A
316
200
223
220
254
219
FOR /21 ONLY
1004B
259
268
1004A
235
236
237
238
244
243
242
241
240
239
293
286
5001
291
1003B
34
285
296
266
297
1008
265
273
228
227
230
229
317
267
295

PCS 63 081

CENTRE UNIT

43		4822 466 93153
200		4822 426 51632 -/21
200		4822 426 51631
219		4822 413 51449
220		4822 466 70739
227		4822 443 63887
228		4822 443 63888
229		4822 450 62063
230		4822 450 62064
235		4822 410 62572
236		4822 410 62573
237		4822 410 62574
238		4822 410 62575
239		4822 410 62571
240		4822 410 62576
241		4822 410 62577
242		4822 410 62578
243		4822 410 62579
244		4822 410 62581
257		4822 466 93148
259		4822 413 41724 -/21
265		4822 444 60914 -/21
265		4822 444 60915
266		4822 466 93148
273		4822 459 11126
273		4822 459 11125 -/37
294		4822 466 93148
297		4822 462 40683
298		4822 426 20234 -/21
298		4822 426 20235
383		4822 320 11094 -/37
384		4822 158 60622
385	△	4822 321 10831
385	△	4822 321 10776 -/22
385	△	4822 321 10883 -/37

Note : Only the mentioned parts are normal service parts.

PLAY DECK

2	4822 462 71851
9	4822 249 10425
24	4822 402 61403
35	4822 358 31163
59	4822 278 90695
62	4822 522 33156
73	4822 361 21483
74	4822 528 50338
75	4822 358 31162
77	4822 532 52465
93	4822 277 30885
97	4822 278 90694

OILS AND GREASE LIST

A = 4822 390 20139
B = 4822 390 20004
C = 5322 390 10096
D = 4822 390 20004

LISTS OF SCREW

223	M3 X 6
224	D3 X 8
253	D3 X 12
267	M3 X 6
268	D3 X 8
286	D3 X 10 Washer
289	D2.9 X 9.5
290	M3 X 6
291	M3 X 10
295	M3 X 6
300	D3 X 12
302	D3 X 12
303	D3 X 12
305	D3 X 12
306	D3 X 12
307	D3 X 8
309	D3 X 10 Washer
310	D3 X 10 Washer
311	M3 X 10
312	M3 X 10
313	M3 X 10

RECORD/PLAYBACK DECK

2	4822 462 71851
9	4822 249 10425
13	4822 249 40276
24	4822 402 61403
35	4822 358 31163
59	4822 278 90695
62	4822 522 33156
73	4822 361 21483
74	4822 528 50338
75	4822 358 31162
77	4822 532 52465
82	4822 278 90706
93	4822 277 30885
97	4822 278 90694

Note : Only the mentioned parts are normal service parts.

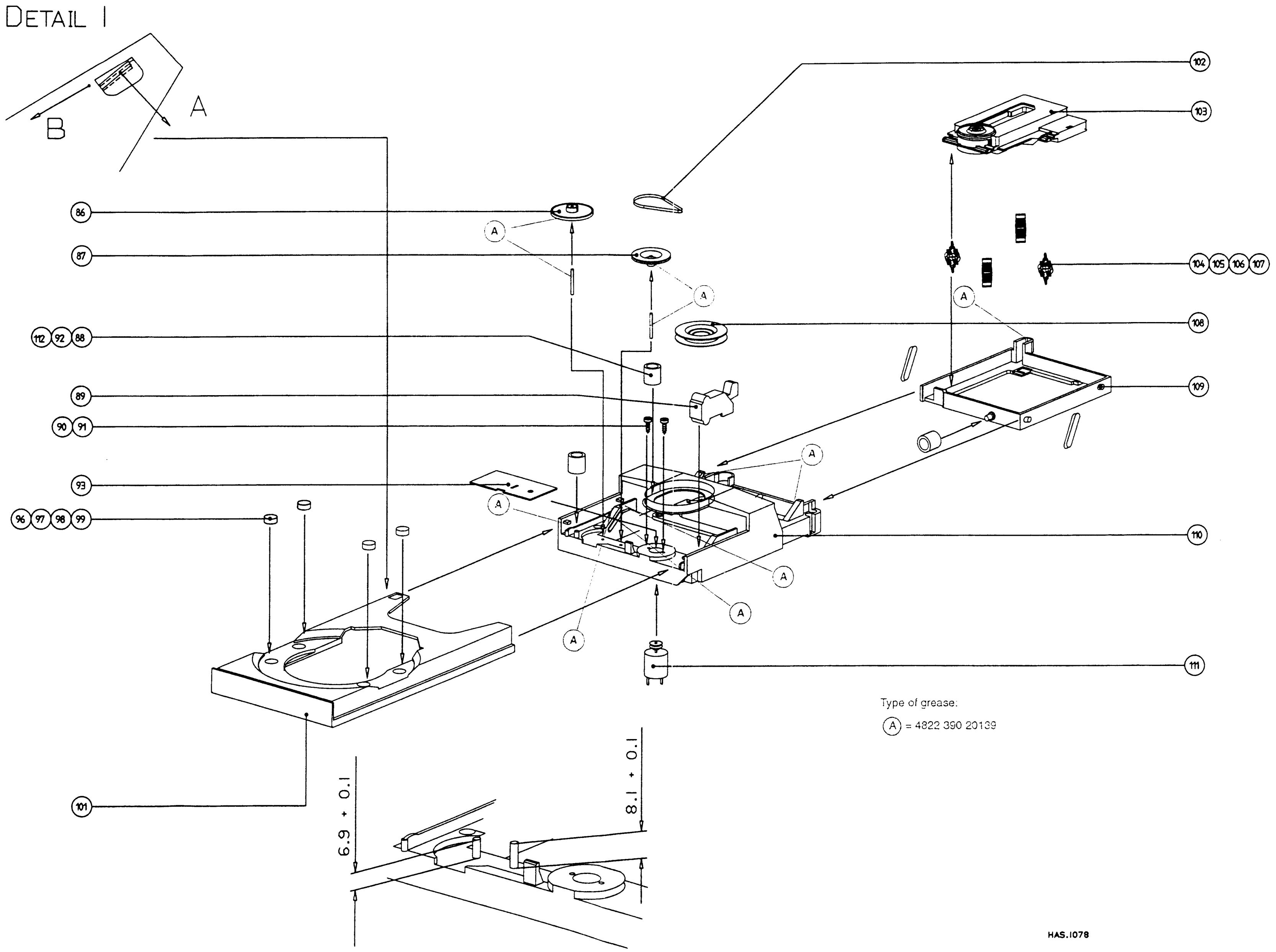
OILS AND GREASE LIST

A = 4822 390 20139
B = 4822 390 20004
C = 5322 390 10096
D = 4822 390 20004

CD MECHANISM

86	4822 528 81464
87	4822 528 81465
88	4822 325 60379
89	4822 276 13222
93	4822 444 60816
96	4822 325 80511
101	4822 444 50679
102	4822 358 31168
103	4822 691 30278
104	4822 325 50215
108	4822 402 61412
109	4822 464 50895
110	4822 444 50678
111	4822 361 21492

CD EXPLODED VIEW


DETAIL I
B
A
86
A
87
A
112 92 88
89
90 91
93
96 97 98 99
101
102
103
104 105 106 107
A
108
109
A
110
A
A
A
A
111
6.9 + 0.1
8.1 + 0.1
HAS.1078

Type of grease:

Ⓐ = 4822 390 20139

POWER BOARD ELECTRICAL PARTSLIST

MISCELLANEOUS

1251	4822 252 20309		Circuit Breaker 1.75A
1252	4822 252 20309		Circuit Breaker 1.75A
1260	4822 267 31176		Speaker Socket
1261	4822 265 31016	△	Mains Socket -/37
1261	4822 265 31015	△	Mains Socket
1262	4822 272 10269	△	Voltage Selector -/21
1301	4822 252 51121	△	Fuse T3.15A 250V -/37
1301	4822 071 52002	△	Fuse T2A 250V
1302	4822 252 51121	△	Fuse T3.15A 250V -/37
1302	4822 071 52002	△	Fuse T2A 250V
1303	4822 253 30334	△	Fuse T1.25A 250V -/37
1303	4822 071 51002	△	Fuse T1A 250V
1304	4822 253 30334	△	Fuse T1.25A 250V -/37
1304	4822 071 51002	△	Fuse T1A 250V
1305	4822 253 30334	△	Fuse T1.25A 250V -/37
1305	4822 071 56301	△	Fuse T630mA 250V
1306	4822 253 30334	△	Fuse T1.25A 250V -/37
1306	4822 071 56301	△	Fuse T630mA 250V
1307	4822 253 10128	△	Fuse T2A 250V -/37
1308	4822 253 30334	△	Fuse T1.25A 250V -/37
1308	4822 071 56301	△	Fuse T630mA 250V
1309	4822 253 30334	△	Fuse T1.25A 250V -/37
1309	4822 071 56301	△	Fuse T630mA 250V

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2251	4822 124 40244		2.2µF 20% 63V
2252	4822 124 40244		2.2µF 20% 63V
2253	5322 124 21189		100µF 20% 40V
2254	5322 124 21189		100µF 20% 40V
2255	4822 122 10466		220pF 10% 50V
2256	4822 122 10466		220pF 10% 50V
2257	4822 124 80196		47µF 20% 50V
2258	4822 124 80196		47µF 20% 50V
2259	4822 121 42007		100nF 10% 100V
2260	4822 121 42007		100nF 10% 100V
2265	4822 122 10459		560pF 10% 50V
2266	4822 122 10459		560pF 10% 50V
2267	4822 122 33195		100pF 10% 50V
2268	4822 122 33195		100pF 10% 50V
2269	4822 122 33195		100pF 10% 50V
2270	4822 122 33195		100pF 10% 50V
2271	4822 121 42007		100nF 10% 100V
2272	4822 121 42007		100nF 10% 100V
2273	4822 122 33195		100pF 10% 50V
2274	4822 122 33195		100pF 10% 50V
2276	4822 126 11316		47nF 50V
2277	4822 126 11316		47nF 50V
2282	4822 124 40435		10µF 20% 50V
2284	4822 124 42245		22µF 20% 63V
2286	4822 124 80196		47µF 20% 50V
2300	4822 124 42057		3300µF 20% 25V
2301	4822 124 42057		3300µF 20% 25V
2302	4822 124 41993		2200µF 20% 35V
2303	4822 124 40248		10µF 20% 63V
2304	4822 124 22412		2200µF 20% 16V
2305	4822 124 23794		470µF 20% 16V
2306	4822 122 33197		1nF 10% 50V
2308	4822 124 42246		470µF 20% 25V
2309	4822 124 40244		2.2µF 20% 63V
2312	4822 124 42392		470µF 20% 50V
2313	4822 124 42391		470µF 20% 63V
2314	4822 124 42245		22µF 20% 63V
2315	4822 124 80398		1000µF 20% 35V
2316	4822 124 40184		1000µF 20% 10V
2317	4822 124 42246		470µF 20% 25V
2318	4822 124 40248		10µF 20% 63V
2323	4822 121 42007		100nF 10% 100V
2324	4822 121 42007		100nF 10% 100V
2330	4822 121 42007		100nF 10% 100V

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3251	4822 116 52257		22k 5% 0.5W
3252	4822 116 52257		22k 5% 0.5W
3253	4822 116 52224		470Ω 5% 0.5W
3254	4822 116 52224		470Ω 5% 0.5W
3255	4822 116 52291		56k 5% 0.5W
3256	4822 116 52291		56k 5% 0.5W
3257	4822 116 52256		2k2 5% 0.5W
3258	4822 116 52256		2k2 5% 0.5W
3259	4822 116 52256		2k2 5% 0.5W
3260	4822 116 52256		2k2 5% 0.5W
3261	4822 116 52291		56k 5% 0.5W
3262	4822 116 52291		56k 5% 0.5W
3263	4822 052 10478	△	4Ω7 5% 0.33W
3264	4822 052 10478	△	4Ω7 5% 0.33W
3265	4822 052 10478	△	4Ω7 5% 0.33W
3266	4822 052 10478	△	4Ω7 5% 0.33W
3280	4822 116 83863		1k 5% 0.5W
3281	4822 116 83863		1k 5% 0.5W
3282	4822 116 52263		2k7 5% 0.5W
3283	4822 052 10101	△	100Ω 5% 0.33W
3284	4822 116 83932	△	220Ω 5% 2W
3286	4822 116 52257		22k 5% 0.5W
3301	4822 116 83886		68Ω 5% 0.5W
3302	4822 116 83886		68Ω 5% 0.5W
3303	4822 116 83885		56Ω 5% 0.5W
3304	4822 116 83877		2k7 5% 0.5W
3305	4822 052 10101	△	100Ω 5% 0.33W
3306	4822 116 83873		2k2 5% 0.5W
3307	4822 052 10101	△	100Ω 5% 0.33W
3308	4822 053 21106	△	10M 5% 0.5W -/37
3310	4822 116 52276		3k9 5% 0.5W
3311	4822 052 10479	△	47Ω 5% 0.33W
3312	4822 116 52256		2k2 5% 0.5W
3313	4822 116 52263		2k7 5% 0.5W
3314	4822 116 52277		39k 5% 0.5W
3315	4822 116 52233		10k 5% 0.5W
3316	4822 051 10333		33k 2% 0.25W
3317	4822 116 52233		10k 5% 0.5W
3318	4822 050 11002		1k 1% 0.4W
3319	4822 116 83873		2k2 5% 0.5W
3320	4822 116 52233		10k 5% 0.5W
3321	4822 116 52283		4k7 5% 0.5W

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5001	4822 146 31137	△	Mains Transformer -/20/37
5001	4822 146 31136	△	Mains Transformer -/21
5251	4822 157 53447		Bead Inductor -/20/37
5253	4822 157 53447		Bead Inductor
5254	4822 157 53447		Bead Inductor

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6300	4822 130 82079	△	D3SBA20
6301	5322 130 80686		1N5392
6302	5322 130 80686		1N5392
6303	5322 130 30684		1N4002
6304	5322 130 30684		1N4002
6305	5322 130 30684		1N4002
6306	5322 130 30684		1N4002
6307	5322 130 30684		1N4002
6308	4822 130 34195		BZX79-C13
6309	4822 130 34278		BZX79-C6V8
6311	4822 130 34195		BZX79-C13
6312	4822 130 34281		BZX79-C15
6313	4822 130 31981		BZX79-C3V9
6314	4822 130 34233		BZX79-C5V1
6315	4822 130 30621		1N4148
6317	4822 130 30621		1N4148
6318	4822 130 31981		BZX79-C3V9
6320	4822 130 30621		1N4148

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7251	4822 209 31543	△	STK4112II
7300	4822 130 61236	△	BD234
7301	4822 130 40937		BC548B
7302	4822 130 40937		BC548B
7303	4822 130 44197		BC558B
7304	5322 130 44786	△	BD675
7306	5322 130 60268	△	BD236

Note : Only the mentioned parts are normal service parts.

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3306	4822 116 83873		2k2 5% 0.5W
3307	4822 052 10101	△	100Ω 5% 0.33W
3308	4822 053 21106	△	10M 5% 0.5W -/37
3310	4822 116 52276		3k9 5% 0.5W
3311	4822 052 10479	△	47Ω 5% 0.33W
3312	4822 116 52256		2k2 5% 0.5W
3313	4822 116 52263		2k7 5% 0.5W
3314	4822 116 52277		39k 5% 0.5W
3315	4822 116 52233		10k 5% 0.5W
3316	4822 051 10333		33k 2% 0.25W
3317	4822 116 52233		10k 5% 0.5W
3318	4822 050 11002		1k 1% 0.4W
3319	4822 116 83873		2k2 5% 0.5W
3320	4822 116 52233		10k 5% 0.5W
3321	4822 116 52283		4k7 5% 0.5W

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5001	4822 146 31137	△	Mains Transformer -/20/37
5001	4822 146 31136	△	Mains Transformer -/21
5251	4822 157 53447		Bead Inductor -/20/37
5253	4822 157 53447		Bead Inductor
5254	4822 157 53447		Bead Inductor

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6300	4822 130 82079	△	D3SBA20
6301	5322 130 80686		1N5392
6302	5322 130 80686		1N5392
6303	5322 130 30684		1N4002
6304	5322 130 30684		1N4002
6305	5322 130 30684		1N4002
6306	5322 130 30684		1N4002
6307	5322 130 30684		1N4002
6308	4822 130 34195		BZX79-C13
6309	4822 130 34278		BZX79-C6V8
6311	4822 130 34195		BZX79-C13
6312	4822 130 34281		BZX79-C15
6313	4822 130 31981		BZX79-C3V9
6314	4822 130 34233		BZX79-C5V1
6315	4822 130 30621		1N4148
6317	4822 130 30621		1N4148
6318	4822 130 31981		BZX79-C3V9
6320	4822 130 30621		1N4148

7251	4822 209 31543	△	STK4112II
7300	4822 130 61236	△	BD234

7301	4822 130 40937		BC548B
7302	4822 130 40937		BC548B
7303	4822 130 44197		BC558B
7304	5322 130 44786	△	BD675
7306	5322 130 60268	△	BD236

Note : Only the mentioned parts are normal service parts.

FRONT BOARD ELECTRICAL PARTSLIST

MISCELLANEOUS

1403	4822 130 91143	FTD Display
1414	4822 276 12465	Tact Switch
1415	4822 276 12465	Tact Switch
1416	4822 276 12465	Tact Switch
1417	4822 276 12465	Tact Switch
1418	4822 276 12465	Tact Switch
1419	4822 276 12465	Tact Switch
1420	4822 276 12465	Tact Switch
1421	4822 276 12465	Tact Switch
1422	4822 276 12465	Tact Switch
1423	4822 276 12465	Tact Switch
1424	4822 276 12465	Tact Switch
1425	4822 276 12465	Tact Switch
1426	4822 276 12465	Tact Switch
1427	4822 276 12465	Tact Switch
1428	4822 276 12465	Tact Switch
1429	4822 276 12465	Tact Switch
1431	4822 276 12465	Tact Switch
1432	4822 276 13403	Tact Switch
1433	4822 276 13403	Tact Switch
1434	4822 276 13403	Tact Switch
1510	4822 267 31506	Headphone Socket

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2401	5322 122 32654	22nF 10% 63V
2402	4822 124 23176	22µF 20% 16V
2403	4822 124 41584	100µF 20% 10V
2404	4822 124 80211	22mF 20% 5.5V
2405	4822 121 51252	470nF 5% 63V
2406	4822 121 51252	470nF 5% 63V
2407	4822 121 51252	470nF 5% 63V
2408	4822 122 33191	22pF 5% 50V
2409	4822 122 33191	22pF 5% 50V
2414	4822 124 23179	10µF 20% 16V
2415	4822 122 33496	100nF 10% 63V
2417	4822 126 11585	22nF +80%-20%
2460	5322 122 32531	100pF 5% 50V
2461	4822 122 33195	100pF 10% 50V
2462	4822 122 33195	100pF 10% 50V
2463	4822 122 33195	100pF 10% 50V
2464	4822 122 33195	100pF 10% 50V
2465	4822 122 33195	100pF 10% 50V
2466	4822 122 33195	100pF 10% 50V
2467	4822 122 33195	100pF 10% 50V
2468	4822 122 33195	100pF 10% 50V
2469	4822 122 33195	100pF 10% 50V
2470	4822 122 33195	100pF 10% 50V

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2471	4822 124 41584	100µF 20% 10V
2472	4822 122 33797	47nF 20% 50V
2473	4822 122 33797	47nF 20% 50V
2479	5322 122 32654	22nF 10% 63V
2480	4822 122 33169	680pF 10% 50V
2485	5322 122 32965	18pF 5% 50V
2486	5322 122 32965	18pF 5% 50V
2487	5322 122 32965	18pF 5% 50V
2488	5322 122 32965	18pF 5% 50V
2489	5322 122 32531	100pF 5% 50V
2490	5322 122 32965	18pF 5% 50V
2491	5322 122 32965	18pF 5% 50V
2492	5322 122 32452	47pF 5% 63V
2493	5322 122 32452	47pF 5% 63V
2494	5322 122 34123	1nF 10% 50V
2495	5322 122 34123	1nF 10% 50V
2496	5322 122 34123	1nF 10% 50V
2497	5322 122 34123	1nF 10% 50V
2498	5322 122 34123	1nF 10% 50V
2513	4822 122 33496	100nF 10% 63V
2514	4822 122 33496	100nF 10% 63V
2515	5322 122 32654	22nF 10% 63V
2516	5322 122 32654	22nF 10% 63V
2517	4822 122 10575	8.2nF 20% 16V
2518	4822 126 10525	8.2nF 10% 63V
2519	4822 122 10576	1.8nF 10% 16V
2520	4822 122 32153	1.8nF 10% 63V
2521	4822 122 33496	100nF 10% 63V
2522	4822 122 33496	100nF 10% 63V
2523	5322 122 32654	22nF 10% 63V
2524	5322 122 32654	22nF 10% 63V
2525	4822 122 10575	8.2nF 20% 16V
2526	4822 126 10525	8.2nF 10% 63V
2527	4822 122 10576	1.8nF 10% 16V
2528	4822 122 32153	1.8nF 10% 63V
2529	4822 122 33169	680pF 10% 50V
2530	4822 122 32535	680pF 10% 63V
2531	4822 126 10178	820pF 10% 50V
2532	4822 122 33806	820pF 10% 63V
2533	4822 122 33195	100pF 10% 50V
2534	4822 122 33195	100pF 10% 50V
2535	4822 122 33848	47pF 5%SL 50V
2536	4822 122 33848	47pF 5%SL 50V
2537	4822 124 41973	100µF 20% 16V
2538	4822 126 11585	22nF +80%-20%
2539	4822 124 41973	100µF 20% 16V
2541	4822 124 80192	4.7µF 20% 63V
2542	4822 124 80192	4.7µF 20% 63V

SELECTOR BOARD ELECTRICAL PARTSLIST

2623	4822 122 33519	470pF 10% 50V
2624	4822 122 33519	470pF 10% 50V
2625	4822 122 33519	470pF 10% 50V
2626	4822 122 33519	470pF 10% 50V
2627	4822 122 33519	470pF 10% 50V
2628	4822 122 33519	470pF 10% 50V
2629	4822 122 33519	470pF 10% 50V
2630	4822 122 33519	470pF 10% 50V

3551	4822 116 52234	100k 5% 0.5W
3552	4822 116 52234	100k 5% 0.5W
3557	4822 116 52233	10k 5% 0.5W
3558	4822 116 52233	10k 5% 0.5W
3559	4822 116 52297	68k 5% 0.5W
3560	4822 116 52297	68k 5% 0.5W
3561	4822 116 52233	10k 5% 0.5W
3562	4822 116 52233	10k 5% 0.5W
3563	4822 116 52245	150k 5% 0.5W
3564	4822 116 52245	150k 5% 0.5W
3565	4822 116 52244	15k 5% 0.5W
3566	4822 116 52244	15k 5% 0.5W
3567	4822 116 52297	68k 5% 0.5W
3568	4822 116 52297	68k 5% 0.5W
3569	4822 116 52303	8k2 5% 0.5W
3570	4822 116 52303	8k2 5% 0.5W
3581	4822 116 52233	10k 5% 0.5W
3582	4822 116 52233	10k 5% 0.5W
3585	4822 116 52284	47k 5% 0.5W
3586	4822 116 52284	47k 5% 0.5W
3587	4822 116 52284	47k 5% 0.5W
3588	4822 116 52284	47k 5% 0.5W
3589	4822 116 52284	47k 5% 0.5W
3590	4822 116 52284	47k 5% 0.5W
3591	4822 116 52284	47k 5% 0.5W
3592	4822 116 52284	47k 5% 0.5W
3595	4822 116 52224	470Ω 5% 0.5W
3596	4822 116 52224	470Ω 5% 0.5W
3597	4822 116 52244	15k 5% 0.5W
3598	4822 116 52244	15k 5% 0.5W
3601	4822 116 52256	2k2 5% 0.5W
3602	4822 116 52256	2k2 5% 0.5W
3603	4822 116 52256	2k2 5% 0.5W
3604	4822 116 52256	2k2 5% 0.5W
3605	4822 116 52234	100k 5% 0.5W
3606	4822 116 52234	100k 5% 0.5W
3607	4822 116 52284	47k 5% 0.5W
3608	4822 116 52284	47k 5% 0.5W
3609	4822 116 52238	12k 5% 0.5W
3610	4822 116 52238	12k 5% 0.5W
3611	4822 116 52233	10k 5% 0.5W
3612	4822 116 52233	10k 5% 0.5W
3613	4822 116 52233	10k 5% 0.5W
3614	4822 116 52233	10k 5% 0.5W
3615	4822 052 10339 ⚠	33Ω 5% 0.33W
3617	4822 116 52244	15k 5% 0.5W
3618	4822 116 52244	15k 5% 0.5W
3619	4822 116 52249	1k8 5% 0.5W
3620	4822 116 52249	1k8 5% 0.5W
3621	4822 116 52231	820Ω 5% 0.5W
3622	4822 116 52231	820Ω 5% 0.5W
3623	4822 116 52231	820Ω 5% 0.5W
3624	4822 116 52231	820Ω 5% 0.5W
3625	4822 116 52238	12k 5% 0.5W
3626	4822 116 52258	220k 5% 0.5W
3629	4822 116 52233	10k 5% 0.5W
3630	4822 050 11002	1k 1% 0.4W
3631	4822 116 52257	22k 5% 0.5W
3632	4822 116 52257	22k 5% 0.5W
3633	4822 116 52257	22k 5% 0.5W
3634	4822 116 52257	22k 5% 0.5W
3635	4822 116 52234	100k 5% 0.5W
3636	4822 116 52234	100k 5% 0.5W
3637	4822 052 10339 ⚠	33Ω 5% 0.33W
3638	4822 116 52226	560Ω 5% 0.5W
3639	4822 116 52277	39k 5% 0.5W
3640	4822 116 52277	39k 5% 0.5W
3641	4822 116 52249	1k8 5% 0.5W
3642	4822 116 52235	1M 5% 0.5W
3643	4822 116 52233	10k 5% 0.5W
3644	4822 116 52249	1k8 5% 0.5W
3645	4822 116 52233	10k 5% 0.5W
3646	4822 116 83939	680Ω 5% 0.5W
3647	4822 116 52233	10k 5% 0.5W
3648	4822 116 83939	680Ω 5% 0.5W
3649	4822 116 52269	3k3 5% 0.5W
3650	4822 116 52269	3k3 5% 0.5W
3653	4822 116 52226	560Ω 5% 0.5W
3654	4822 050 11002	1k 1% 0.4W

5551	4822 157 53447	Bead Inductor
5552	4822 157 62552	Coil 2µ2 20%
5553	4822 157 62552	Coil 2µ2 20%
5554	4822 157 62552	Coil 2µ2 20%
5555	4822 157 62552	Coil 2µ2 20%
5556	4822 157 62552	Coil 2µ2 20%
5557	4822 157 62552	Coil 2µ2 20%
5558	4822 157 62552	Coil 2µ2 20%
5559	4822 157 62552	Coil 2µ2 20%

6551	4822 130 30621	1N4148
6552	4822 130 30621	1N4148
6553	4822 130 30621	1N4148
6554	4822 130 30621	1N4148
6555	4822 130 30621	1N4148
6556	4822 130 30621	1N4148
6557	4822 130 30621	1N4148
6558	4822 130 30621	1N4148
6559	4822 130 30621	1N4148
6560	4822 130 30621	1N4148
6561	4822 130 30621	1N4148
6562	4822 130 30621	1N4148
6563	4822 130 30621	1N4148
6564	4822 130 30621	1N4148
6565	4822 130 30621	1N4148
6566	4822 130 30621	1N4148
6567	4822 130 30621	1N4148
6568	4822 130 30621	1N4148
6569	4822 130 34173	BZX79-C5V6
6570	4822 130 30621	1N4148
6571	4822 130 30621	1N4148

7551	4822 209 83274	NJM4560D
7552	5322 209 10421	HEF4094BP
7553	4822 130 44196	BC548C
7554	4822 130 44196	BC548C
7556	4822 130 44196	BC548C
7557	4822 209 83274	NJM4560D
7558	4822 130 44196	BC548C
7559	4822 130 41327	BC327-40
7560	4822 130 61236	BD234
7561	4822 130 44196	BC548C

Note : Only the mentioned parts are normal service parts.

COMBI BOARD ELECTRICAL PARTSLIST

MISCELLANEOUS

1502	4822 267 31522	Mic Socket -/21
1912	4822 276 12465	Tact Switch
1913	4822 276 12465	Tact Switch
1914	4822 276 12465	Tact Switch
1915	4822 276 12465	Tact Switch
1916	4822 276 12465	Tact Switch
1917	4822 276 12465	Tact Switch
1918	4822 276 12465	Tact Switch
1919	4822 276 12465	Tact Switch
1920	4822 276 12465	Tact Switch
1921	4822 276 12465	Tact Switch
1922	4822 276 12465	Tact Switch
1929	4822 267 51162	Conn. 6P
1930	4822 267 51161	Conn. 5P

2500	4822 124 23178	47µF 20% 16V -/21
2501	4822 126 11585	22nF +80%-20% -/21
2502	4822 124 41973	100µF 20% 16V -/21
2503	4822 124 41969	1µF 20% 50V -/21
2504	4822 124 40248	10µF 20% 63V -/21
2505	4822 124 40248	10µF 20% 63V -/21
2506	4822 124 40248	10µF 20% 63V -/21
2507	4822 124 40248	10µF 20% 63V -/21
2508	4822 122 33195	100pF 10% 50V -/21
2509	4822 122 33195	100pF 10% 50V -/21
2510	4822 122 10573	56pF 5% 50V -/21
2511	4822 122 10573	56pF 5% 50V -/21
2512	4822 122 10573	56pF 5% 50V -/21
2513	4822 122 10573	56pF 5% 50V -/21
2514	4822 122 33169	680pF 10% 50V -/21
2515	4822 122 33169	680pF 10% 50V -/21
2516	4822 122 10573	56pF 5% 50V -/21
2517	4822 122 33196	330pF 10% 50V -/21
2518	4822 124 41398	1µF 20% 63V
2519	4822 124 41398	1µF 20% 63V
2520	4822 124 40248	10µF 20% 63V
2521	4822 124 40248	10µF 20% 63V
2522	4822 122 33519	470pF 10% 50V
2523	4822 122 33519	470pF 10% 50V
2524	4822 124 41973	100µF 20% 16V
2525	4822 124 41973	100µF 20% 16V
2526	4822 124 40433	47µF 20% 25V
2527	4822 126 11585	22nF +80%-20%
2528	4822 122 33169	680pF 10% 50V
2529	4822 122 33169	680pF 10% 50V
2530	4822 122 10166	22nF 30% 16V
2531	4822 122 10166	22nF 30% 16V
2532	4822 122 33069	33pF 5%5L 50V

FRONT BOARD ELECTRICAL PARTSLIST

3401	4822 052 10109	△	10Ω 5% 0.33W
3402	4822 050 11002		1k 1% 0.4W
3403	4822 116 52175		100Ω 5% 0.5W
3404	4822 116 52228		680Ω 5% 0.5W
3405	4822 052 10108	△	1Ω 5% 0.33W
3406	4822 052 10108	△	1Ω 5% 0.33W
3410	4822 116 90836		Network 5X10k 5%
3411	4822 116 90835		Network 7X10k 5%
3412	4822 116 52233		10k 5% 0.5W
3413	4822 116 52219		330Ω 5% 0.5W
3414	4822 116 52233		10k 5% 0.5W
3415	4822 116 52233		10k 5% 0.5W
3416	4822 116 90835		Network 7X10k 5%
3417	4822 116 52219		330Ω 5% 0.5W
3421	4822 051 20103		10k 5% 0.1W
3422	4822 051 20104		100k 5% 0.1W
3423	4822 116 52233		10k 5% 0.5W
3424	4822 116 52234		100k 5% 0.5W
3430	4822 116 52233		10k 5% 0.5W
3432	4822 116 52233		10k 5% 0.5W
3433	4822 116 52219		330Ω 5% 0.5W
3434	4822 116 52233		10k 5% 0.5W
3456	4822 051 20102		1k 5% 0.1W
3457	4822 051 20102		1k 5% 0.1W
3458	4822 051 20102		1k 5% 0.1W
3459	4822 051 20102		1k 5% 0.1W
3460	4822 050 11002		1k 1% 0.4W
3461	4822 116 52234		100k 5% 0.5W
3471	4822 051 20102		1k 5% 0.1W
3487	4822 051 20103		10k 5% 0.1W
3488	4822 051 20109	△	10Ω 5% 0.1W
3489	4822 051 20472		4k7 5% 0.1W
3490	4822 051 20103		10k 5% 0.1W
3493	4822 116 52233		10k 5% 0.5W
3495	4822 116 52233		10k 5% 0.5W
3496	4822 116 52233		10k 5% 0.5W
3497	4822 116 52233		10k 5% 0.5W
3498	4822 050 11002		1k 1% 0.4W
3499	4822 050 15608		5Ω6 1% 0.4W
3501	4822 116 52256		2k2 5% 0.5W
3502	4822 116 52256		2k2 5% 0.5W
3503	4822 116 52263		2k7 5% 0.5W
3504	4822 116 52263		2k7 5% 0.5W
3505	4822 116 52283		4k7 5% 0.5W
3506	4822 116 52283		4k7 5% 0.5W
3507	4822 105 11107		Potm 50kB x 2
3508	4822 105 11107		Potm 50kB x 2
3509	4822 105 11107		Potm 50kB x 2
3510	4822 105 11107		Potm 50kB x 2
3511	4822 105 11107		Potm 50kB x 2

3513	4822 116 52244	15k 5% 0.5W
3514	4822 116 52244	15k 5% 0.5W
3515	4822 116 52251	18k 5% 0.5W
3516	4822 051 20183	18k 5% 0.1W
3517	4822 051 20183	18k 5% 0.1W
3518	4822 051 20183	18k 5% 0.1W
3519	4822 051 20223	22k 5% 0.1W
3520	4822 051 20223	22k 5% 0.1W
3521	4822 116 52244	15k 5% 0.5W
3522	4822 051 20153	15k 5% 0.1W
3523	4822 116 52251	18k 5% 0.5W
3524	4822 051 20183	18k 5% 0.1W
3525	4822 116 52251	18k 5% 0.5W
3526	4822 051 20183	18k 5% 0.1W
3527	4822 116 52257	22k 5% 0.5W
3528	4822 051 20223	22k 5% 0.1W
3529	4822 116 52304	82k 5% 0.5W
3530	4822 051 20823	82k 5% 0.1W
3531	4822 116 52243	1k5 5% 0.5W
3532	4822 116 52243	1k5 5% 0.5W
3533	4822 116 52243	1k5 5% 0.5W
3534	4822 051 20152	1k5 5% 0.1W
3535	4822 116 52292	560k 5% 0.5W
3536	4822 116 52292	560k 5% 0.5W
3537	4822 116 52284	47k 5% 0.5W
3538	4822 116 52257	22k 5% 0.5W
3544	4822 116 52213	180Ω 5% 0.5W
4400	4822 051 10008	0Ω 5% 0.25W
4402	4822 051 10008	0Ω 5% 0.25W
4404	4822 051 10008	0Ω 5% 0.25W
4405	4822 051 10008	0Ω 5% 0.25W
4406	4822 051 10008	0Ω 5% 0.25W
4407	4822 051 10008	0Ω 5% 0.25W

5401	5322 242 73697	Resonator 8MHz
5402	4822 242 70938	X'tal 32.768kHz
5410	4822 157 62552	Coil 2.2µH 20%
5411	4822 157 62552	Coil 2.2µH 20%
5412	4822 157 53447	Bead Inductor
5413	4822 157 53447	Bead Inductor
5414	4822 157 53447	Bead Inductor
5416	4822 157 53447	Bead Inductor
5417	4822 157 53447	Bead Inductor
5511	4822 157 53447	Bead Inductor
5512	4822 157 53447	Bead Inductor

6401	4822 130 34167	BZX79-C6V2
6402	4822 130 30621	1N4148
6403	4822 130 30621	1N4148
6405	4822 214 52009	GP1U58XP
6406	4822 130 30621	1N4148
6407	4822 130 30621	1N4148
6408	4822 130 30621	1N4148
6409	4822 130 30621	1N4148
6410	4822 130 30621	1N4148
6411	4822 130 30621	1N4148
6412	4822 130 30621	1N4148

7400	4822 209 31503	TMP87CM70F
7402	4822 209 31508	ST24C01
7403	5322 209 10421	HEF4094BP
7450	5322 130 44779	BC338-40
7451	4822 130 60588	DTC114ES
7452	4822 130 44196	BC548C
7453	4822 130 60588	DTC114ES
7454	4822 130 44196	BC548C
7455	4822 130 44196	BC548C
7456	4822 130 60588	DTC114ES
7459	5322 130 60068	BC558C
7460	4822 130 44461	BC546B
7539	4822 209 83274	NJM4560D

Note : Only the mentioned parts are normal service parts.

SELECTOR BOARD ELECTRICAL PARTSLIST

MISCELLANEOUS

1554	4822 267 30631	Aux/TV Socket
1555	4822 267 60328	Conn. 21P
1558	4822 276 13282	Key Switch

2557	4822 124 40239	0.47µF 20% 63V
2558	4822 124 40239	0.47µF 20% 63V
2559	4822 124 40239	0.47µF 20% 63V
2560	4822 124 40239	0.47µF 20% 63V
2561	4822 124 40239	0.47µF 20% 63V
2562	4822 124 40239	0.47µF 20% 63V
2563	4822 124 40239	0.47µF 20% 63V
2564	4822 124 40239	0.47µF 20% 63V
2565	5322 124 41948	470nF 20% 50V
2566	5322 124 41948	470nF 20% 50V
2581	4822 122 33195	100pF 10% 50V
2582	4822 122 33195	100pF 10% 50V
2583	4822 122 33169	680pF 10% 50V
2584	4822 122 33169	680pF 10% 50V
2585	4822 122 10577	3.3nF 10% 16V
2586	4822 122 10577	3.3nF 10% 16V
2587	4822 124 80192	4.7µF 20% 63V
2588	4822 124 80192	4.7µF 20% 63V
2589	4822 126 12145	47nF 10% 25V
2590	4822 124 23794	470µF 20% 16V
2591	4822 122 33196	330pF 10% 50V
2592	4822 122 33196	330pF 10% 50V
2593	4822 124 40248	10µF 20% 63V
2594	4822 124 40248	10µF 20% 63V
2595	4822 124 40248	10µF 20% 63V
2596	4822 124 40248	10µF 20% 63V
2599	4822 124 41973	100µF 20% 16V
2600	4822 126 12145	47nF 10% 25V
2601	4822 126 12147	22nF 10% Y5Ω 25V
2605	4822 122 33195	100pF 10% 50V
2606	4822 122 33195	100pF 10% 50V
2607	4822 122 33849	150pF 10%Y5P 50V
2608	4822 122 33849	150pF 10%Y5P 50V
2609	4822 124 40239	0.47µF 20% 63V
2610	4822 124 40239	0.47µF 20% 63V
2611	4822 124 40177	47µF 20% 10V
2612	4822 126 12339	2.2nF 10% Y5R
2615	4822 124 80192	4.7µF 20% 63V
2616	4822 124 41973	100µF 20% 16V
2617	4822 124 40248	10µF 20% 63V
2618	4822 122 10573	56pF 5% 50V
2619	4822 122 10573	56pF 5% 50V
2620	4822 122 10573	56pF 5% 50V
2621	4822 122 10573	56pF 5% 50V

TAPECORE BOARD ELECTRICAL PARTSLIST

2533	4822 122 10574	1.2nF 10% 16V
2534	4822 122 10466	220pF 10% 50V
2535	4822 122 10466	220pF 10% 50V
2536	4822 124 23179	10µF 20% 16V
2537	4822 124 41973	100µF 20% 16V
2538	4822 124 40433	47µF 20% 25V
2539	4822 124 41973	100µF 20% 16V
2544	4822 124 40196	220µF 20% 16V
2553	4822 124 40248	10µF 20% 63V
2554	4822 124 40248	10µF 20% 63V -/21
2555	4822 124 40248	10µF 20% 63V -/21
2902	4822 126 12148	2.7nF 10%

3500	4822 116 83894	47Ω 5% 0.5W -/21
3503	4822 116 52238	12k 5% 0.5W -/21
3504	4822 116 52234	100k 5% 0.5W -/21
3505	4822 116 52303	8k2 5% 0.5W -/21
3506	4822 116 52224	470Ω 5% 0.5W -/21
3507	4822 101 21204	Potm 20KA -/21
3508	4822 116 52256	2k2 5% 0.5W -/21
3509	4822 116 52233	10k 5% 0.5W -/21
3510	4822 116 52238	12k 5% 0.5W -/21
3511	4822 116 52224	470Ω 5% 0.5W -/21
3512	4822 116 52234	100k 5% 0.5W -/21
3513	4822 116 83894	47Ω 5% 0.5W -/21
3514	4822 116 52296	6k8 5% 0.5W
3515	4822 116 52296	6k8 5% 0.5W
3516	4822 116 52251	18k 5% 0.5W
3517	4822 116 52251	18k 5% 0.5W
3518	4822 116 52249	1k8 5% 0.5W
3519	4822 116 52249	1k8 5% 0.5W
3520	4822 116 52251	18k 5% 0.5W
3521	4822 116 52251	18k 5% 0.5W
3522	4822 116 83921	5Ω6 5% 0.5W
3523	4822 116 83921	5Ω6 5% 0.5W
3524	4822 116 80311 △	4Ω7 5%
3526	4822 116 52256	2k2 5% 0.5W
3527	4822 116 52256	2k2 5% 0.5W
3528	4822 116 52277	39k 5% 0.5W
3529	4822 116 52284	47k 5% 0.5W
3530	4822 116 52283	4k7 5% 0.5W
3531	4822 116 52283	4k7 5% 0.5W
3532	4822 116 52303	8k2 5% 0.5W
3533	4822 116 52303	8k2 5% 0.5W
3534	4822 101 90226	Potm 10kB x 2 w/motor
3535	4822 116 52233	10k 5% 0.5W
3536	4822 050 11002	1k 1% 0.4W
3537	4822 050 11002	1k 1% 0.4W
3538	4822 116 52222	390Ω 5% 0.5W
3539	4822 116 52222	390Ω 5% 0.5W
3540	4822 116 83866	1M 5% 0.5W
3541	4822 116 83866	1M 5% 0.5W
3542	4822 116 52222	390Ω 5% 0.5W
3543	4822 116 52222	390Ω 5% 0.5W
3544	4822 050 11002	1k 1% 0.4W
3545	4822 050 11002	1k 1% 0.4W
3546	4822 050 11002	1k 1% 0.4W
3547	4822 050 11002	1k 1% 0.4W
3548	4822 116 52234	100k 5% 0.5W -/21
3549	4822 116 52215	220Ω 5% 0.5W
3550	4822 116 52215	220Ω 5% 0.5W
3551	4822 116 52215	220Ω 5% 0.5W
3552	4822 116 52215	220Ω 5% 0.5W
3553	4822 116 52257	22k 5% 0.5W
3554	4822 116 52257	22k 5% 0.5W
3555	4822 116 52257	22k 5% 0.5W
3556	4822 116 52269	3k3 5% 0.5W
3584	4822 050 11002	1k 1% 0.4W
3585	4822 116 52224	470Ω 5% 0.5W
3586	4822 116 52222	390Ω 5% 0.5W
3587	4822 116 52222	390Ω 5% 0.5W
3588	4822 116 52283	4k7 5% 0.5W
3589	4822 051 10333	33k 2% 0.25W
3590	4822 116 52175	100Ω 5% 0.5W
3591	4822 116 52269	3k3 5% 0.5W
3592	4822 116 52215	220Ω 5% 0.5W

5520	4822 157 53447	Bead Inductor
5521	4822 157 53447	Bead Inductor

6544	4822 130 34173	BZX79-B5V6
6545	4822 130 34173	BZX79-B5V6
6546	4822 130 30621	1N4148
6547	4822 130 30621	1N4148
6548	4822 130 34174	BZX79-C4V7
6549	4822 130 34233	BZX79-C5V1
6550	4822 130 82978	LTL-16KPE-P
6551	4822 130 30621	1N4148
6903	4822 130 30621	1N4148
6904	4822 130 30621	1N4148
6905	4822 130 30621	1N4148

7501	4822 209 83274	NJM4560D -/21
7516	4822 209 61187	BA15218
7530	4822 130 44196	BC548C
7531	4822 130 44196	BC548C
7532	5322 130 44779	BC338-40
7533	5322 130 44779	BC338-40
7534	5322 130 44779	BC338-40
7535	5322 130 44779	BC338-40
7544	5322 130 44779	BC338-40
7545	5322 130 44779	BC338-40
7546	4822 130 41715	BC328-40
7547	4822 130 41715	BC328-40
7548	4822 130 40937	BC548B
7549	4822 130 40937	BC548B
7553	4822 130 41691	BC556B
7900	5322 209 12171	PC74HC4094T

Note : Only the mentioned parts are normal service parts.

MISCELLANEOUS

2634	4822 126 10781	470pF 50V
2635	4822 124 41398	1µF 20% 63V
2636	4822 124 41398	1µF 20% 63V
2637	4822 122 33069	33pF 5%5L 50V
2638	4822 122 33069	33pF 5%5L 50V
2639	4822 124 41398	1µF 20% 63V
2640	4822 124 41398	1µF 20% 63V
2641	4822 126 10329	68pF 5%
2642	4822 126 10329	68pF 5%
2650	4822 124 40196	220µF 20% 16V
2651	4822 126 10781	470pF 50V
2653	4822 124 41398	1µF 20% 63V
2657	4822 124 41398	1µF 20% 63V
2658	4822 124 41398	1µF 20% 63V
2659	4822 122 33195	100pF 10% 50V
2660	4822 122 33195	100pF 10% 50V
2661	4822 124 40248	10µF 20% 63V
2662	4822 124 40248	10µF 20% 63V
2663	4822 122 10459	560pF 10% 50V
2664	4822 122 10459	560pF 10% 50V
2665	4822 122 33169	680pF 10% 50V
2666	4822 122 33169	680pF 10% 50V
2667	4822 126 10329	68pF 5%
2668	4822 126 10329	68pF 5%
2671	4822 124 80192	4.7µF 20% 63V
2672	4822 124 80192	4.7µF 20% 63V
2673	4822 122 10458	82pF 10% 50V
2674	4822 122 10458	82pF 10% 50V
2677	4822 124 41973	100µF 20% 16V
2699	4822 122 33197	1nF 10% 50V
2700	4822 122 33197	1nF 10% 50V
2701	4822 126 10777	100pF 50V
2702	4822 126 10777	100pF 50V
2703	4822 124 41973	100µF 20% 16V
2704	4822 124 41973	100µF 20% 16V
2705	4822 121 41935	12nF 5% 250V
2706	4822 121 41935	12nF 5% 250V
2707	4822 126 11585	22nF +80%-20%
2708	4822 126 11585	22nF +80%-20%
2709	4822 124 41398	1µF 20% 63V
2710	4822 124 41398	1µF 20% 63V
2712	4822 126 11595	470pF 10% 50V
2713	4822 124 40196	220µF 20% 16V
2719	4822 122 33197	1nF 10% 50V
2720	4822 122 33197	1nF 10% 50V
2721	4822 126 10777	100pF 50V
2722	4822 126 10777	100pF 50V
2723	4822 124 41973	100µF 20% 16V
2724	4822 124 41973	100µF 20% 16V
2725	4822 121 41935	12nF 5% 250V

TAPECORE BOARD ELECTRICAL PARTSLIST

2726	4822 121 41935	12nF 5% 250V
2727	4822 126 11585	22nF +80%-20%
2728	4822 126 11585	22nF +80%-20%
2729	4822 124 41398	1µF 20% 63V
2730	4822 124 41398	1µF 20% 63V
2732	4822 126 11595	470pF 10% 50V
2733	4822 124 40196	220µF 20% 16V
2739	4822 126 10781	470pF 50V
2740	4822 126 10781	470pF 50V
2741	4822 124 41973	100µF 20% 16V
2747	4822 124 41973	100µF 20% 16V
2752	4822 124 40433	47µF 20% 25V
2755	4822 124 41398	1µF 20% 63V
2757	4822 124 40433	47µF 20% 25V
2759	4822 126 11714	4.7nF 20%
2760	4822 121 51387	10nF 20% 16V
2762	4822 124 40239	0.47µF 20% 63V
2763	4822 126 10329	68pF 5%
2764	4822 126 10329	68pF 5%
2765	4822 121 41857	10nF 5% 250V
2768	4822 124 41973	100µF 20% 16V
2769	4822 126 10781	470pF 50V
2770	4822 124 40196	220µF 20% 16V
2771	4822 126 11714	4.7nF 20%
2772	4822 126 11714	4.7nF 20%
2773	4822 126 11714	4.7nF 20%
2774	4822 124 80192	4.7µF 20% 63V
2775	4822 124 40433	47µF 20% 25V
2776	4822 124 41398	1µF 20% 63V
2777	4822 124 41398	1µF 20% 63V
2778	4822 124 41398	1µF 20% 63V
2779	4822 122 10459	560pF 10% 50V
2780	4822 122 10459	560pF 10% 50V
2781	4822 126 11585	22nF +80%-20%
2782	4822 126 11585	22nF +80%-20%
2783	4822 124 41398	1µF 20% 63V
2784	4822 124 41398	1µF 20% 63V
2785	4822 126 11595	470pF 10% 50V
2786	4822 126 11595	470pF 10% 50V
2789	4822 124 42244	4.7µF 20% 63V
2790	4822 124 42244	4.7µF 20% 63V

3635	4822 116 52234	100k 5% 0.5W
3636	4822 116 52234	100k 5% 0.5W
3637	4822 116 52285	470k 5% 0.5W
3638	4822 116 52285	470k 5% 0.5W
3639	4822 116 52284	47k 5% 0.5W
3640	4822 116 52284	47k 5% 0.5W
3641	4822 116 52243	1k5 5% 0.5W
3642	4822 116 52243	1k5 5% 0.5W
3645	4822 116 52233	10k 5% 0.5W
3646	4822 116 52233	10k 5% 0.5W
3650	4822 116 52224	470Ω 5% 0.5W
3651	4822 050 11002	1k 1% 0.4W
3653	4822 116 52284	47k 5% 0.5W
3655	4822 116 52233	10k 5% 0.5W
3656	4822 116 52233	10k 5% 0.5W
3657	4822 116 52224	470Ω 5% 0.5W
3658	4822 116 52224	470Ω 5% 0.5W
3659	4822 116 52251	18k 5% 0.5W
3660	4822 116 52251	18k 5% 0.5W
3661	4822 116 52249	1k8 5% 0.5W
3662	4822 116 52249	1k8 5% 0.5W
3663	4822 116 52303	8k2 5% 0.5W
3664	4822 116 52303	8k2 5% 0.5W
3665	4822 116 52291	56k 5% 0.5W
3666	4822 116 52291	56k 5% 0.5W
3667	4822 116 52238	12k 5% 0.5W
3668	4822 116 52238	12k 5% 0.5W
3670	4822 116 52283	4k7 5% 0.5W
3671	4822 050 11002	1k 1% 0.4W
3672	4822 050 11002	1k 1% 0.4W
3673	4822 116 52257	22k 5% 0.5W
3674	4822 116 52257	22k 5% 0.5W
3675	4822 051 10333	33k 2% 0.25W
3676	4822 051 10333	33k 2% 0.25W
3677	4822 116 52257	22k 5% 0.5W
3678	4822 050 11002	1k 1% 0.4W
3679	4822 116 52297	68k 5% 0.5W
3681	4822 116 52257	22k 5% 0.5W
3682	4822 116 52257	22k 5% 0.5W
3683	4822 116 52284	47k 5% 0.5W
3684	4822 116 52284	47k 5% 0.5W
3686	4822 051 10333	33k 2% 0.25W
3697	4822 116 52224	470Ω 5% 0.5W
3698	4822 116 52224	470Ω 5% 0.5W
3699	4822 116 52224	470Ω 5% 0.5W
3700	4822 116 52224	470Ω 5% 0.5W
3701	4822 116 52231	820Ω 5% 0.5W
3702	4822 116 52231	820Ω 5% 0.5W
3703	4822 116 52265	270k 5% 0.5W
3704	4822 116 52265	270k 5% 0.5W
3705	4822 116 52238	12k 5% 0.5W
3706	4822 116 52238	12k 5% 0.5W
3707	4822 116 52195	47Ω 5% 0.5W
3708	4822 116 52195	47Ω 5% 0.5W
3709	4822 116 52269	3k3 5% 0.5W
3710	4822 116 52269	3k3 5% 0.5W
3711	4822 116 52269	3k3 5% 0.5W
3712	4822 116 52269	3k3 5% 0.5W
3713	4822 116 52224	470Ω 5% 0.5W
3717	4822 116 52224	470Ω 5% 0.5W
3718	4822 116 52224	470Ω 5% 0.5W
3719	4822 116 52224	470Ω 5% 0.5W
3720	4822 116 52224	470Ω 5% 0.5W
3721	4822 116 52224	470Ω 5% 0.5W
3722	4822 116 52224	470Ω 5% 0.5W
3723	4822 116 52265	270k 5% 0.5W
3724	4822 116 52265	270k 5% 0.5W
3725	4822 116 52238	12k 5% 0.5W
3726	4822 116 52238	12k 5% 0.5W
3727	4822 116 52195	47Ω 5% 0.5W
3728	4822 116 52195	47Ω 5% 0.5W
3729	4822 116 52269	3k3 5% 0.5W
3730	4822 116 52269	3k3 5% 0.5W
3731	4822 116 52269	3k3 5% 0.5W
3732	4822 116 52269	3k3 5% 0.5W
3733	4822 116 52224	470Ω 5% 0.5W
3734	4822 116 52228	680Ω 5% 0.5W
3735	4822 050 11002	1k 1% 0.4W
3736	4822 050 11002	1k 1% 0.4W
3737	4822 050 11002	1k 1% 0.4W
3738	4822 116 52219	330Ω 5% 0.5W
3743	4822 116 52233	10k 5% 0.5W
3744	4822 116 52233	10k 5% 0.5W
3745	4822 116 52231	820Ω 5% 0.5W
3746	4822 116 52231	820Ω 5% 0.5W
3747	4822 116 52224	470Ω 5% 0.5W
3751	4822 116 52233	10k 5% 0.5W
3752	4822 116 52257	22k 5% 0.5W
3753	4822 116 52283	4k7 5% 0.5W
3754	4822 116 52303	8k2 5% 0.5W
3755	4822 116 52233	10k 5% 0.5W
3756	4822 100 11771	Trimmer 20k 30%
3757	4822 052 10478 △	4Ω7 5% 0.33W
3758	4822 116 52191	33Ω 5% 0.5W
3759	4822 116 52296	6k8 5% 0.5W
3760	4822 116 52182	15Ω 5% 0.5W
3761	4822 116 52176	10Ω 5% 0.5W
3762	4822 116 52176	10Ω 5% 0.5W
3763	4822 116 52257	22k 5% 0.5W
3764	4822 116 52257	22k 5% 0.5W
3765	4822 116 52283	4k7 5% 0.5W
3766	4822 116 52256	2k2 5% 0.5W
3767	4822 116 52257	22k 5% 0.5W
3768	4822 116 52233	10k 5% 0.5W
3769	4822 116 52224	470Ω 5% 0.5W
3770	4822 116 52219	330Ω 5% 0.5W
3771	4822 050 11002	1k 1% 0.4W
3772	4822 050 11002	1k 1% 0.4W
3773	4822 050 11002	1k 1% 0.4W
3774	4822 051 10333	33k 2% 0.25W
3775	4822 116 52238	12k 5% 0.5W
3776	4822 116 52283	4k7 5% 0.5W
3777	4822 116 52175	100Ω 5% 0.5W
3778	4822 116 52175	100Ω 5% 0.5W
3779	4822 116 52251	18k 5% 0.5W
3780	4822 116 52251	18k 5% 0.5W
3781	4822 050 11002	1k 1% 0.4W
3783	4822 101 11206	Trimmer 470Ω 30%
3784	4822 105 11023	Trimmer 1k 30%
3785	4822 116 52249	1k8 5% 0.5W
3786	4822 116 52202	82Ω 5% 0.5W
3787	4822 101 11206	Trimmer 470Ω 30%
3788	4822 105 11023	Trimmer 1k 30%
3789	4822 116 52249	1k8 5% 0.5W
3790	4822 116 52202	82Ω 5% 0.5W
3791	4822 116 52303	8k2 5% 0.5W
3792	4822 116 52303	8k2 5% 0.5W
3795	4822 116 52233	10k 5% 0.5W
3796	4822 116 52233	10k 5% 0.5W
3797	4822 116 52283	4k7 5% 0.5W
3798	4822 116 52238	12k 5% 0.5W

5673	4822 156 20811	Coil 36µH 5%
5674	4822 156 20811	Coil 36µH 5%
5760	4822 156 20946	Osc Coil 100kHz

6706	4822 130 30621	1N4148
6707	4822 130 30621	1N4148
6782	4822 130 30621	1N4148
6783	4822 130 30621	1N4148
6794	4822 130 30621	1N4148
6795	4822 130 30621	1N4148
6796	4822 130 30621	1N4148

7635	4822 209 83274	NJM4560D
7636	5322 209 14865	MC14066BCP
7641	4822 130 44196	BC548C
7642	4822 130 44196	BC548C

ECO4 TUNER ELECTRICAL PARTSLIST - EXCEPT /22

7653	4822 130 60588	DTC114ES
7667	4822 130 60588	DTC114ES
7700	4822 209 70288	UPC1313HA
7701	4822 209 70288	UPC1313HA
7702	5322 209 14865	MC14066BCP
7703	5322 209 14865	MC14066BCP
7704	4822 209 61667	UPC1330HA
7706	4822 130 60588	DTC114ES
7744	4822 130 60588	DTC114ES
7745	4822 130 60588	DTC114ES
7746	4822 130 60588	DTC114ES
7750	4822 130 41344	BC337-40
7751	4822 130 42682	DTA144ES
7752	4822 130 44196	BC548C
7753	4822 130 60588	DTC114ES
7754	4822 130 44196	BC548C
7760	4822 130 41344	BC337-40
7763	4822 130 42682	DTA144ES
7764	4822 130 60588	DTC114ES
7765	4822 130 60588	DTC114ES
7767	4822 130 44196	BC548C
7768	4822 130 44196	BC548C
7770	4822 209 31505	CXA1298AP
7776	4822 130 60588	DTC114ES
7781	4822 130 60588	DTC114ES
7782	4822 130 60588	DTC114ES
7783	4822 130 60588	DTC114ES
7785	4822 130 60588	DTC114ES
7791	4822 130 44197	BC558B
7792	4822 130 44197	BC558B
7795	4822 130 60588	DTC114ES
7796	4822 130 60588	DTC114ES
7797	4822 130 41344	BC337-40

Note : Only the mentioned parts are normal service parts.

MISCELLANEOUS

1101	4822 267 10283	FM Aerial Socket
1101	4822 265 20598	FM Aerial Socket -/37
1103	4822 267 31505	AM Aerial Socket

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2100	4822 122 33195	100pF 10% 50V
2104	4822 122 33195	100pF 10% 50V
2107	4822 122 31746	1000pF 2% 63V
2112	4822 122 33496	100nF 10% 63V
2113	4822 125 60101	Trimcap 3-11pF 100V
2114	5322 122 32531	100pF 5% 50V -/20
2115	4822 125 60101	Trimcap 3-11pF 100V
2120	5322 122 32268	470pF 10% 50V
2121	5322 122 32481	15pF 5% 50V
2122	4822 122 31746	1000pF 2% 63V
2123	4822 122 31746	1000pF 2% 63V
2124	4822 121 51387	10nF 20% 16V
2125	5322 122 31946	27pF 10% 50V -/20
2126	4822 122 33496	100nF 10% 63V -/20
2129	4822 121 43705	390pF 1% 160V -/20
2134	4822 122 33197	1nF 10% 50V
2135	4822 121 70245	560pF 1% 160V
2136	5322 122 31946	27pF 10% 50V
2138	5322 122 32658	22pF 5% 50V
2139	4822 122 33175	2.2nF 20% 50V -/20
2141	4822 124 40244	2.2µF 20% 63V
2142	4822 124 40242	1µF 20% 63V
2143	4822 122 33325	470nF 16V
2144	4822 122 33325	470nF 16V
2147	4822 122 33177	10nF 20% 50V
2150	4822 124 40435	10µF 20% 50V
2151	4822 124 40435	10µF 20% 50V
2152	4822 122 33496	100nF 10% 63V
2154	4822 122 33175	2.2nF 20% 50V
2155	4822 122 33175	2.2nF 20% 50V
2156	5322 126 10181	100nF 25V
2157	5322 126 10181	100nF 25V
2158	4822 122 31746	1000pF 2% 63V -/37
2158	4822 122 31775	680pF 2% 63V
2159	4822 122 31746	1000pF 2% 63V -/37
2159	4822 122 31775	680pF 2% 63V
2160	4822 124 40242	1µF 20% 63V
2161	4822 124 40242	1µF 20% 63V
2162	4822 124 40242	1µF 20% 63V
2168	4822 122 33481	1n8 5%
2169	5322 122 31863	330pF 5% 50V
2170	5322 126 10223	4.7nF 10% 63V
2171	5322 126 10223	4.7nF 10% 63V
2172	4822 124 41631	1.5µF 50V
2173	4822 124 40433	47µF 20% 25V
2174	5322 116 80853	560pF 5%
2175	5322 122 32531	100pF 5%
2178	4822 122 33197	1nF 10% 50V
2179	4822 122 33195	100pF 10% 50V
2180	5322 122 31946	27pF 10% 50V
2181	4822 122 32139	12pF 2% 63V
2183	4822 122 33496	100nF 10% 63V
2184	4822 124 41584	100µF 20% 10V
2185	4822 122 33496	100nF 10% 63V
2186	4822 122 31746	1000pF 2% 63V

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3106	4822 051 20104	100k 5% 0.1W
3107	4822 051 20222	2k2 5% 0.1W -/20
3108	4822 051 20104	100k 5% 0.1W
3109	4822 051 20222	2k2 5% 0.1W -/20
3111	4822 051 20153	15k 5% 0.1W
3112	4822 051 20223	22k 5% 0.1W
3119	4822 116 52224	470Ω 5% 0.5W
3120	4822 050 15602	5k6 1% 0.4W
3121	4822 051 20104	100k 5% 0.1W
3122	4822 051 20471	470Ω 5% 0.1W
3123	4822 051 20223	22k 5% 0.1W
3124	4822 050 22202	2k2 1% 0.6W -/20
3125	4822 051 20472	4k7 5% 0.1W -/20
3128	4822 051 20222	2k2 5% 0.1W
3129	4822 051 20472	4k7 5% 0.1W -/20
3132	4822 050 24702	4k7 1% 0.6W
3141	4822 050 22201	220Ω 1% 0.6W
3142	4822 051 20222	2k2 5% 0.1W
3144	4822 051 20473	47k 5% 0.1W
3147	4822 051 20184	180k 5% 0.1W
3148	4822 100 11682	47k 30%LIN 0.2W
3149	4822 051 20823	82k 5% 0.1W
3151	4822 050 21502	1k5 1% 0.6W
3154	4822 051 20333	33k 5% 0.1W
3155	4822 051 20333	33k 5% 0.1W
3156	4822 050 21003	10k 1% 0.6W
3157	4822 051 20473	47k 5% 0.1W
3160	4822 051 20823	82k 5% 0.1W
3161	4822 051 20823	82k 5% 0.1W
3162	4822 050 21002	1k 1% 0.6W
3163	4822 050 21002	1k 1% 0.6W
3164	4822 050 24702	4k7 1% 0.6W
3165	4822 050 24702	4k7 1% 0.6W
3166	4822 051 20101	100Ω 5% 0.1W
3167	4822 051 20008	0Ω 5% 0.1W
3170	4822 050 24702	4k7 1% 0.6W
3171	4822 051 20101	100Ω 5% 0.1W
3172	4822 051 20472	4k7 5% 0.1W
3173	4822 116 52244	15k 5% 0.5W
3174	4822 050 21003	10k 1% 0.6W
3175	4822 051 20104	100k 5% 0.1W
3176	4822 051 20104	100k 5% 0.1W
3178	4822 051 20104	100k 5% 0.1W
3179	4822 051 20223	22k 5% 0.1W
3180	4822 051 20104	100k 5% 0.1W
3181	4822 116 52234	100k 5% 0.5W
3183	4822 051 20223	22k 5% 0.1W
3184	4822 051 20223	22k 5% 0.1W
3185	4822 051 20104	100k 5% 0.1W
3186	4822 051 20104	100k 5% 0.1W
3188	4822 051 10102	1k 2% 0.25W
3189	4822 050 21802	1k8 1% 0.6W
3190	4822 050 21802	1k8 1% 0.6W
3191	4822 050 21802	1k8 1% 0.6W
3192	4822 050 21802	1k8 1% 0.6W
3193	4822 116 52224	470Ω 5% 0.5W
3194	4822 050 24701	470Ω MRS25
3195	4822 050 24701	470Ω MRS25
3197	4822 050 24701	470Ω MRS25
3211	4822 051 10008	0Ω 5% 0.25W
3212	4822 051 10008	0Ω 5% 0.25W
3213	4822 051 10008	0Ω 5% 0.25W
3220	4822 051 20008	0Ω 5% 0.1W
3221	4822 051 20008	0Ω 5% 0.1W
3222	4822 051 20008	0Ω 5% 0.1W -/21/37
3224	4822 051 20008	0Ω 5% 0.1W
3226	4822 051 20008	0Ω 5% 0.1W
3228	4822 051 10008	0Ω 5% 0.25W
3229	4822 051 20008	0Ω 5% 0.1W -/37
3229	4822 051 20008	0Ω 5% 0.1W /21
3236	4822 051 10008	0Ω 5% 0.25W -/37
3236	4822 051 10008	0Ω 5% 0.25W -/21
3237	4822 051 10008	0Ω 5% 0.25W
3238	4822 051 20008	0Ω 5% 0.1W -/20
3240	4822 051 10008	0Ω 5% 0.25W
3241	4822 051 20008	0Ω 5% 0.1W -/21/37
3242	4822 051 10008	0Ω 5% 0.25W
3243	4822 051 20008	0Ω 5% 0.1W -/21/37
3244	4822 051 20008	0Ω 5% 0.1W
3245	4822 051 20008	0Ω 5% 0.1W -/20
3246	4822 051 10008	0Ω 5% 0.25W
3247	4822 051 10008	0Ω 5% 0.25W
3248	4822 051 20008	0Ω 5% 0.1W
3249	4822 051 20821	820Ω 5%

ECO4 TUNER ELECTRICAL PARTSLIST - EXCEPT /22

5107	4822 157 63835	MW Aerial Coil -/21/37
5107	4822 157 63799	MW Aerial Coil -/20
5108	4822 157 63801	LW Aerial Coil -/20
5109	4822 156 30947	RF Coil 1.5T
5120	4822 156 30947	RF Coil 1.5T
5122	4822 157 60517	Coil 110µH -/20
5123	4822 157 60517	Coil 110µH
5140	4822 158 60511	AM-IF Coil
5142	4822 157 70302	AM-IF Coil
5143	4822 242 70665	Ceramic Filter 10.7MHz
5144	4822 242 70665	Ceramic Filter 10.7MHz
5145	4822 242 81362	Cer. Discriminator
5150	4822 157 50975	Coil 1MHz 10%
5170	4822 242 72976	Resonator 7.2MHz

6105	4822 130 83075	HN1V02H
6109	4822 130 82833	1SV228
6121	4822 130 30621	1N4148 -/37
6122	4822 130 30621	1N4148 -/21
6123	4822 130 30621	1N4148 -/37
6124	4822 130 82833	1SV228
6140	4822 130 30621	1N4148
6154	4822 130 30621	1N4148
6155	4822 130 30621	1N4148
6174	4822 130 34233	BZX79-F5V1

7102	4822 130 42615	BC817-40 -/20
7104	5322 130 42136	BC848C -/20
7105	4822 130 60093	2SA838B
7120	4822 130 60163	2SC1047
7121	5322 130 42136	BC848C -/20
7123	5322 130 42136	BC848C -/20
7128	5322 130 42136	BC848C -/20
7140	4822 209 32011	TEA5712T/N1 (RF-IC)
7150	5322 209 14482	HEF4069UBT (Inverter)
7156	4822 130 41344	BC337-40
7157	4822 130 41344	BC337-40
7169	5322 130 41983	BC858B
7170	5322 130 42136	BC848C
7171	5322 130 42136	BC848C
7172	4822 209 30606	MM74HCU04M(Inverter)
7173	4822 209 31998	LC7218M Synthesizer
7174	5322 130 41983	BC858B
7178	5322 130 41983	BC858B

TUNER 92 ELECTRICAL PARTSLIST - FOR /22 ONLY

MISCELLANEOUS

1101	4822 210 10492	Tuner Unit FE415-G11
1110	4822 267 10283	FM Antenna Socket
1111	4822 267 31505	AM Antenna Socket

2101	5322 122 34099	470pF 10% 63V
2102	5322 122 32268	470pF 10% 50V
2103	4822 124 40433	47µF 20% 25V
2104	4822 121 42408	220nF 5% 63V
2105	5322 122 32965	18pF 5% 50V
2107	4822 122 31385	22pF 50V
2108	5322 122 32654	22nF 10% 63V
2109	5322 122 32654	22nF 10% 63V
2110	5322 122 32654	22nF 10% 63V
2112	5322 122 32654	22nF 10% 63V
2113	5322 122 32661	56pF 5% 50V
2114	5322 124 41431	22µF 20% 35V
2115	4822 124 40239	0.47µF 20% 63V
2116	5322 121 42386	100nF 5% 63V
2117	4822 121 41935	12nF 5% 250V
2118	4822 121 41935	12nF 5% 250V
2119	4822 124 40244	2.2µF 20% 63V
2120	4822 124 40244	2.2µF 20% 63V
2121	4822 124 40196	220µF 20% 16V
2123	4822 124 40246	4.7µF 20% 63V
2124	4822 124 40246	4.7µF 20% 63V
2125	4822 122 33177	10nF 20% 50V
2126	4822 122 31782	15000pF 10% 50V
2129	4822 124 40242	1µF 20% 63V
2131	4822 124 40435	10µF 20% 50V
2140	4822 125 60102	Trimmer 30pF
2141	4822 125 60101	Trimmer 10pF
2142	4822 125 60102	Trimmer 30pF
2143	5322 122 32269	6.8pF 5% 50V
2144	4822 121 42408	220nF 5% 63V
2145	4822 121 51263	510pF 1% 400V
2146	4822 121 70082	430pF 1% 400V
2147	5322 122 32654	22nF 10% 63V
2148	5322 122 32452	47pF 5% 63V
2149	4822 122 33177	10nF 20% 50V
2150	5322 122 32654	22nF 10% 63V
2151	5322 122 34099	470pF 10% 63V
2152	4822 124 40242	1µF 20% 63V
2153	5322 122 34099	470pF 10% 63V
2154	5322 122 32481	15pF 5% 50V
2155	5322 122 32965	18pF 5% 50V
2156	4822 124 40433	47µF 20% 25V
2158	5322 126 10223	4.7nF 10% 63V
2159	5322 126 10223	4.7nF 10% 63V

2160	4822 124 41631	1.5µF 50V
2161	4822 122 32927	220nF +80-20% 50V
2162	4822 122 10166	22nF 30% 16V
2165	4822 124 40433	47µF 20% 25V
2196	5322 122 32448	10pF 5% 50V
2210	4822 124 41643	100µF 20% 16V
2215	5322 122 32268	470pF 10% 50V
2216	5322 122 32268	470pF 10% 50V
2219	4822 122 32927	220nF +80-20% 50V
2221	5322 122 32268	470pF 10% 50V
2224	4822 122 32575	220pF 10% 500V
2225	4822 122 32575	220pF 10% 500V

3100	4822 050 21501	⚠	150Ω 1% 0.6W
3101	4822 050 21501	⚠	150Ω 1% 0.6W
3102	4822 051 20224		220k 5% 0.1W
3104	4822 051 20154		150k 5% 0.1W
3105	4822 051 20562		5k6 5% 0.1W
3106	4822 051 20829		82Ω 5% 0.1W
3107	4822 051 20104		100k 5% 0.1W
3108	4822 050 24701		470Ω 1% 0.6W
3113	4822 053 10221		220Ω 5% 1W
3114	4822 051 20472		4k7 5% 0.1W
3115	4822 051 20391		390Ω 5% 0.1W
3116	4822 051 20478		4Ω7 5% 0.1W
3117	4822 051 20331		330Ω 5% 0.1W
3118	4822 116 52215		220Ω 5% 0.5W
3120	4822 052 10339	⚠	33Ω 5% 0.33W
3121	4822 051 20272		2k7 5% 0.1W
3122	4822 051 20562		5k6 5% 0.1W
3123	4822 051 20223		22k 5% 0.1W
3124	4822 051 20103		10k 5% 0.1W
3125	4822 100 11213		Trimmer 22k 30%
3126	4822 051 20123		12k 5% 0.1W
3127	4822 051 20562		5k6 5% 0.1W
3128	4822 051 20562		5k6 5% 0.1W
3129	4822 051 20103		10k 5% 0.1W
3131	4822 100 11319		Trimmer 4k7
3132	4822 051 20103		10k 5% 0.1W
3133	4822 051 20008		0Ω 5% 0.1W
3134	4822 050 15602		5k6 1% 0.4W
3135	4822 051 10008		0Ω 5% 0.25W
3138	4822 116 83922		150Ω 5%
3140	4822 051 20821		820Ω 5% 0.1W
3141	4822 051 20182		1k8 5% 0.1W
3142	4822 051 20472		4k7 5% 0.1W
3143	4822 051 20821		820Ω 5% 0.1W
3144	4822 051 20331		330Ω 5% 0.1W
3145	4822 051 20271		270Ω 5% 0.1W
3147	4822 050 15602		5k6 1% 0.4W
3148	4822 051 20104		100k 5% 0.1W
3149	4822 051 20472		4k7 5% 0.1W
3150	4822 050 25601		560Ω 1% 0.6W
3151	4822 050 24702		4k7 1% 0.6W
3152	4822 051 20103		10k 5% 0.1W
3155	4822 050 22201	⚠	220Ω 1% 0.6W
3156	4822 051 20153		15k 5% 0.1W
3157	4822 051 20472		4k7 5% 0.1W
3158	4822 050 24702		4k7 1% 0.6W
3159	4822 051 20104		100k 5% 0.1W
3160	4822 051 20104		100k 5% 0.1W
3162	4822 050 23901	⚠	390Ω 1% 0.6W
3163	4822 051 20103		10k 5% 0.1W
3164	4822 051 20473		47k 5% 0.1W
3165	4822 050 21002		1k 1% 0.6W
3166	4822 050 21002		1k 1% 0.6W
3167	4822 050 21002		1k 1% 0.6W
3170	4822 051 20223		22k 5% 0.1W
3171	4822 051 20103		10k 5% 0.1W
3172	4822 051 20472		4k7 5% 0.1W
3173	4822 051 20223		22k 5% 0.1W
3183	4822 050 21003		10k 1% 0.6W
3184	4822 051 20332		3k3 5% 0.1W
3185	4822 051 20103		10k 5% 0.1W
3186	4822 050 21003		10k 1% 0.6W
3187	4822 051 20103		10k 5% 0.1W
3190	4822 051 20479		47Ω 5% 0.1W
3194	4822 051 20472		4k7 5% 0.1W
3196	4822 051 20008		0Ω 5% 0.1W
3197	4822 051 20008		0Ω 5% 0.1W
3198	4822 051 20103		10k 5% 0.1W
3200	4822 051 20008		0Ω 5% 0.1W
3202	4822 051 20008		0Ω 5% 0.1W
3223	4822 051 20474		470k 5% 0.1W
3225	4822 050 21002		1k 1% 0.6W
3230	4822 051 20223		22k 5% 0.1W
3231	4822 051 20223		22k 5% 0.1W
3233	4822 051 10102		1k 2% 0.25W
3236	4822 051 20008		0Ω 5% 0.1W
3240	4822 051 20182		1k8 5% 0.1W
3241	4822 051 20008		0Ω 5% 0.1W
3244	5322 116 44005		PTC 250Ω 25V

5101	4822 157 53192	0.22µH 20%
5103	4822 242 81249	Ceram Filter 10.7MHz
5104	4822 157 63029	IFT AM

TUNER 92 ELECTRICAL PARTSLIST - FOR /22 ONLY

⊣▯⊢ ∿∿∿

5105	4822 157 63904	Detector Coil
5106	4822 157 63802	Birdy Filter
5107	4822 157 63799	MW Aerial Coil
5108	4822 157 63912	AM Osc Coil
5109	4822 157 63801	LW Aerial Coil
5110	4822 242 71878	Ceram Filter 450kHz
5111	4822 242 81248	Resonator 19kHz
5112	4822 242 72976	X'TAL 7.2MHz
5113	4822 242 81249	10.7MHz Ceramic Filter
5114	4822 152 20699	560µH Inductor

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6101	4822 130 34174	BZX79-C4V7
6102	4822 130 83075	HN1V02H
6109	4822 130 30621	1N4148

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7101	4822 130 60163	2SC1047
7103	4822 209 31001	LA1851N
7104	5322 130 60068	BC558C
7105	4822 209 30178	LC7218
7106	5322 130 60068	BC558C
7107	5322 130 41982	BC848B
7108	4822 130 44196	BC548C
7109	4822 130 44196	BC548C
7110	5322 130 44779	BC338-40
7111	5322 130 41982	BC848B
7112	4822 130 60163	2SC1047
7113	4822 130 44196	BC548C
7114	5322 130 44779	BC338-40
7115	4822 130 41024	BF245B
7116	4822 130 60163	2SC1047
7119	5322 130 41983	BC858B
7120	4822 130 44196	BC548C
7150	5322 130 44779	BC338-40
7157	5322 130 44779	BC338-40

Note : Only the mentioned parts are normal service parts.

CD BOARD ELECTRICAL PARTSLIST

MISCELLANEOUS

1002	4822 242 73557	Resonator 8.467MHz
1020	4822 071 51601 △	Fuse 160mA
1021	4822 071 51601 △	Fuse 160mA
1570	4822 242 81151	Crystal 16.9344Hz
1700	4822 242 72527	Resonator 4MHz

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2000	5322 122 31865	1.5nF 10% 63V
2001	5322 116 80853	560pF 5% 63V
2003	4822 122 32575	220pF 10% 500V
2004	4822 122 32575	220pF 10% 500V
2005	4822 122 32575	220pF 10% 500V
2006	4822 122 32575	220pF 10% 500V
2007	4822 122 32575	220pF 10% 500V
2008	4822 122 32575	220pF 10% 500V
2009	4822 122 33496	100nF 10% 63V
2010	5322 124 21643	22µF 20% 40V
2011	4822 122 33496	100nF 10% 63V
2012	4822 124 40272	33µF 20% 16V
2015	5322 124 21643	22µF 20% 40V
2016	4822 122 33496	100nF 10% 63V
2017	5322 124 21643	22µF 20% 40V
2018	4822 122 33496	100nF 10% 63V
2019	4822 122 33809	22nF 20% 50V
2040	5322 122 32654	22nF 10% 63V
2041	4822 126 10326	180pF 5%
2042	5322 124 21643	22µF 20% 40V
2043	5322 122 31863	330pF 5% 50V
2044	4822 126 10326	180pF 5%
2045	5322 122 32452	47pF 5% 63V
2046	5322 122 32452	47pF 5% 63V
2047	5322 122 32531	100pF 5% 50V
2048	5322 122 32965	18pF 5% 50V
2049	4822 126 10326	180pF 5%
2050	4822 126 10326	180pF 5%
2051	5322 122 31863	330pF 5% 50V
2052	5322 124 21643	22µF 20% 40V
2060	4822 122 33496	100nF 10% 63V
2061	4822 122 33496	100nF 10% 63V
2062	4822 124 40272	33µF 20% 16V
2063	4822 124 40272	33µF 20% 16V
2064	4822 122 33342	33nF 10% 63V
2065	4822 122 33496	100nF 10% 63V
2066	4822 122 33175	2.2nF 20% 50V
2070	4822 122 33176	2.7nF 20% 50V
2071	4822 122 33496	100nF 10% 63V
2072	4822 126 10326	180pF 5%
2080	4822 122 33496	100nF 10% 63V

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2081	5322 124 21643	22µF 20% 40V
2082	4822 122 33496	100nF 10% 63V
2083	5322 124 21643	22µF 20% 40V
2084	4822 126 10326	180pF 5%
2085	4822 122 33496	100nF 10% 63V
2086	5322 126 10465	3.9nF 10% 63V
2101	5322 122 32452	47pF 5% 63V
2102	4822 122 33175	2.2nF 20% 50V
2103	4822 124 40849	330µF 20% 16V
2104	4822 122 33496	100nF 10% 63V
2105	5322 121 42661	330nF 5% 63V
2106	4822 122 33496	100nF 10% 63V
2107	4822 124 41584	100µF 20% 10V
2108	4822 122 33809	22nF 20% 50V
2109	4822 124 40242	1µF 20% 63V
2110	5322 122 32659	33pF 5% 50V
2111	5322 121 42386	100nF 5% 63V
2112	4822 122 33496	100nF 10% 63V
2114	5322 122 32452	47pF 5% 63V
2115	5322 122 32452	47pF 5% 63V
2116	4822 124 40242	1µF 20% 63V
2117	5322 126 10223	4.7nF 10% 63V
2118	5322 126 10223	4.7nF 10% 63V
2119	4822 124 41584	100µF 20% 10V
2120	4822 122 33496	100nF 10% 63V
2121	4822 122 33496	100nF 10% 63V
2122	4822 124 40849	330µF 20% 16V
2123	4822 122 33496	100nF 10% 63V
2125	5322 126 10223	4.7nF 10% 63V
2140	4822 122 33496	100nF 10% 63V
2141	4822 122 32542	47nF 10% 63V
2300	5322 122 31863	330pF 5% 50V
2301	4822 124 40272	33µF 20% 16V
2302	4822 124 40246	4.7µF 20% 63V
2303	4822 122 33216	270pF 5% 50V
2304	4822 124 40272	33µF 20% 16V
2305	4822 124 40246	4.7µF 20% 63V
2306	4822 122 33496	100nF 10% 63V
2309	4822 122 33216	270pF 5% 50V
2310	5322 122 31863	330pF 5% 50V
2311	4822 124 40246	4.7µF 20% 63V
2312	4822 122 33219	1.8nF 10% 50V
2313	4822 122 33219	1.8nF 10% 50V
2500	4822 124 80148	2200µF 20% 16V
2501	4822 122 33496	100nF 10% 63V
2502	4822 124 41853	1000µF 16V
2503	4822 122 33496	100nF 10% 63V
2504	4822 122 33496	100nF 10% 63V
2550	4822 122 33175	2.2nF 20% 50V
2610	4822 122 33496	100nF 10% 63V

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2611	4822 122 33496	100nF 10% 63V
2612	4822 122 33496	100nF 10% 63V
2702	4822 124 40272	33µF 20% 16V
2703	4822 122 33809	22nF 20% 50V
2704	4822 122 33175	2.2nF 20% 50V

▭

3000	4822 050 21003	10k 1% 0.6W
3001	4822 050 21003	10k 1% 0.6W
3002	4822 050 21003	10k 1% 0.6W
3003	4822 050 21003	10k 1% 0.6W
3004	4822 050 21003	10k 1% 0.6W
3005	4822 050 21003	10k 1% 0.6W
3006	4822 051 20103	10k 5% 0.1W
3007	4822 052 10338 △	3Ω3 5% 0.33W
3008	4822 052 10338 △	3Ω3 5% 0.33W
3009	4822 051 20105	1M 5% 0.1W
3010	4822 051 20103	10k 5% 0.1W
3011	4822 051 20103	10k 5% 0.1W
3012	4822 051 10102	1k 2% 0.25W
3013	4822 051 10102	1k 2% 0.25W
3014	4822 052 10478 △	4Ω7 5% 0.33W
3015	4822 050 21002	1k 1% 0.6W
3016	4822 050 21002	1k 1% 0.6W
3017	4822 051 10102	1k 2% 0.25W
3040	4822 051 10101	100Ω 2% 0.25W
3041	4822 051 20393	39k 5% 0.1W
3042	4822 051 20334	330k 5% 0.1W
3043	4822 051 20303	30k 5% 0.1W
3044	4822 051 10102	1k 2% 0.25W
3045	4822 051 20101	100Ω 5% 0.1W
3046	4822 051 10102	1k 2% 0.25W
3047	4822 051 20434	430k 5% 0.1W
3048	4822 051 20101	100Ω 5% 0.1W
3049	4822 050 24301	430Ω 1% 0.6W
3050	4822 051 20434	430k 5% 0.1W
3051	4822 051 20182	1k8 5% 0.1W
3052	4822 051 20182	1k8 5% 0.1W
3053	4822 051 20392	3k9 5% 0.1W
3054	4822 051 20101	100Ω 5% 0.1W
3055	4822 051 20124	120k 5% 0.1W
3056	4822 050 21204	120k 1% 0.6W
3057	4822 050 25603	56k 1% 0.6W
3058	4822 050 21002	1k 1% 0.6W
3060	4822 117 10036	7K5 1% 0.1W
3061	4822 051 20682	6k8 5% 0.1W
3062	4822 116 52244	15k 5% 0.5W
3063	4822 051 20103	10k 5% 0.1W
3064	4822 050 21503	15k 1% 0.125W

CD BOARD ELECTRICAL PARTSLIST

3065	4822 052 10229	△	22Ω 5% 0.33W
3066	4822 052 10108	△	1Ω 5% 0.33W
3067	4822 052 10108	△	1Ω 5% 0.33W
3070	4822 051 20153		15k 5% 0.1W
3071	4822 051 20103		10k 5% 0.1W
3072	4822 050 26802		6k8 1% 0.6W
3073	4822 052 10229	△	22Ω 5% 0.33W
3074	4822 116 52244		15k 5% 0.5W
3075	4822 050 21003		10k 1% 0.6W
3080	4822 051 20682		6k8 5% 0.1W
3081	4822 050 24702		4k7 1% 0.6W
3082	4822 051 20153		15k 5% 0.1W
3083	4822 052 10108		1Ω 5% 0.33W
3084	4822 052 10108		1Ω 5% 0.33W
3085	4822 050 21003		10k 1% 0.6W
3086	4822 052 10229	△	22Ω 5% 0.33W
3087	4822 116 52244		15k 5% 0.5W
3100	4822 050 22202		2k2 1% 0.6W
3101	4822 051 20223		22k 5% 0.1W
3102	4822 051 20223		22k 5% 0.1W
3103	4822 052 10338	△	3Ω3 5% 0.33W
3105	4822 052 10338	△	3Ω3 5% 0.33W
3106	4822 051 10102		1k 2% 0.25W
3109	4822 051 20222		2k2 5% 0.1W
3110	4822 051 20105		1M 5% 0.1W
3111	4822 052 10229	△	22Ω 5% 0.33W
3112	4822 050 22205		2M2 1% 0.6W
3117	4822 051 20182		1k8 5% 0.1W
3118	4822 051 20182		1k8 5% 0.1W
3119	4822 051 10561		560Ω 2% 0.25W
3140	4822 116 52234		100k 5% 0.5W
3141	4822 051 20104		100k 5% 0.1W
3142	4822 050 24703		47k 1% 0.6W
3143	4822 052 10229	△	22Ω 5% 0.33W
3144	4822 051 20223		22k 5% 0.1W
3146	4822 050 21003		10k 1% 0.6W
3147	4822 051 20392		3k9 5% 0.1W
3148	4822 051 20473		47k 5% 0.1W
3300	4822 051 20223		22k 5% 0.1W
3301	4822 051 20153		15k 5% 0.1W
3302	4822 051 20332		3k3 5% 0.1W
3303	4822 050 21803		18k 1% 0.6W
3304	4822 051 20123		12k 5% 0.1W
3305	4822 052 10229	△	22Ω 5% 0.33W
3306	4822 052 10229	△	22Ω 5% 0.33W
3307	4822 051 20332		3k3 5% 0.1W
3308	4822 051 20123		12k 5% 0.1W
3309	4822 051 20223		22k 5% 0.1W
3310	4822 051 20153		15k 5% 0.1W
3311	4822 051 20183		18k 5% 0.1W

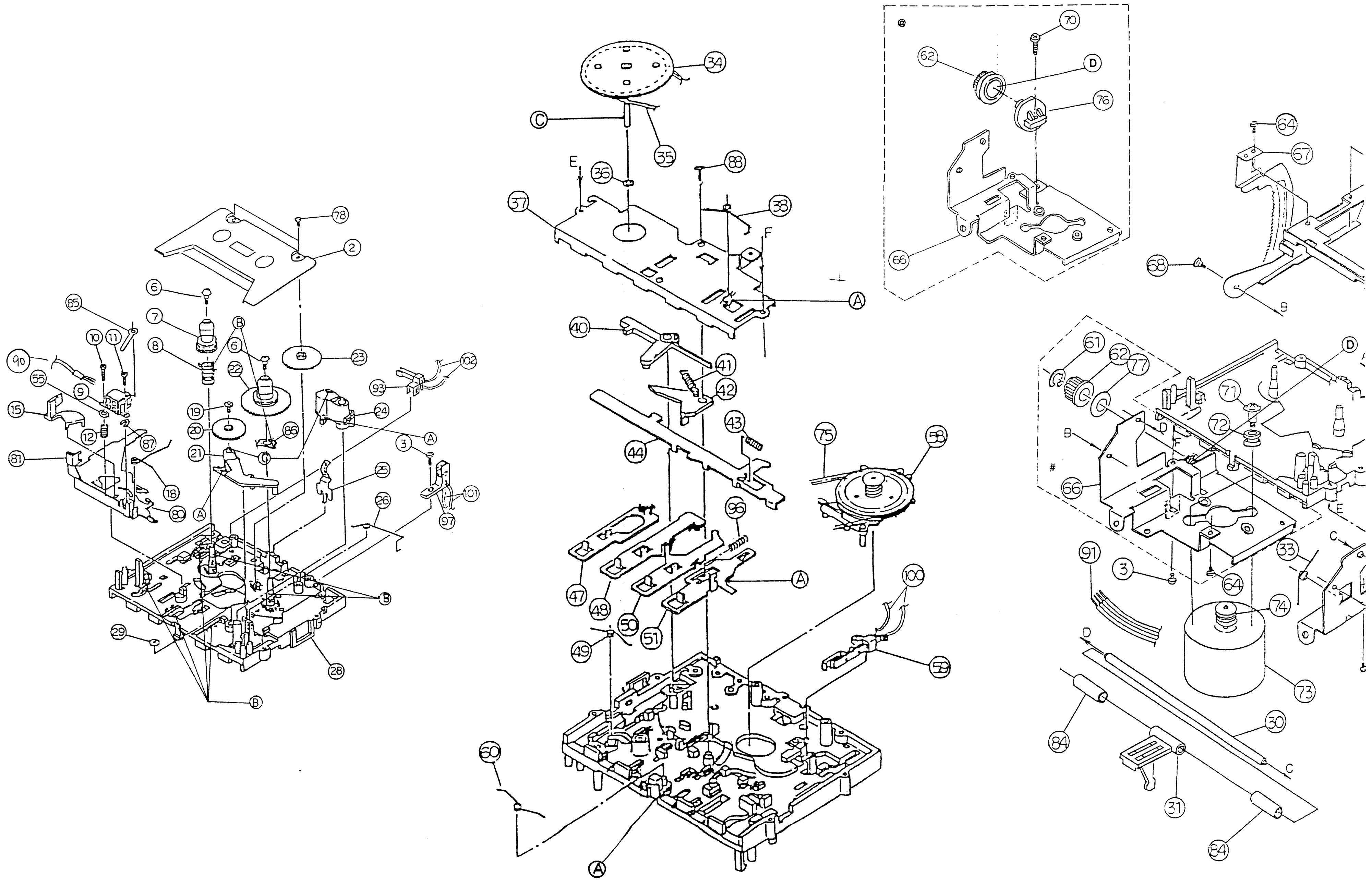
3312	4822 050 22203		22k 1% 0.6W
3313	4822 051 20223		22k 5% 0.1W
3314	4822 050 21002		1k 1% 0.6W
3315	4822 050 21002		1k 1% 0.6W
3320	4822 116 83933		15k 1% 0.1W
3321	4822 116 83933		15k 1% 0.1W
3322	4822 116 83933		15k 1% 0.1W
3323	4822 116 83933		15k 1% 0.1W
3325	4822 116 83933		15k 1% 0.1W
3326	4822 116 83933		15k 1% 0.1W
3327	4822 116 83933		15k 1% 0.1W
3328	4822 116 83933		15k 1% 0.1W
3360	4822 051 10102		1k 2% 0.25W
3361	4822 051 10102		1k 2% 0.25W
3501	4822 052 10108	△	1Ω 5% 0.33W
3502	4822 052 10108	△	1Ω 5% 0.33W
3550	4822 051 20561		560Ω 5% 0.1W
3551	4822 051 10102		1k 2% 0.25W
3552	4822 051 20223		22k 5% 0.1W
3553	4822 051 10102		1k 2% 0.25W
3610	4822 051 20123		12k 5% 0.1W
3611	4822 116 52303		8K2 5% 0.5W
3612	4822 051 20123		12k 5% 0.1W
3613	4822 051 20123		12k 5% 0.1W
3614	4822 051 20123		12k 5% 0.1W
3615	4822 052 10108	△	1Ω 5% 0.33W
3616	4822 052 10108	△	1Ω 5% 0.33W
3617	4822 052 10229	△	22Ω 5% 0.33W
3662	4822 051 20103		10k 5% 0.1W
3663	4822 051 20103		10k 5% 0.1W
3664	4822 051 20103		10k 5% 0.1W
3665	4822 051 20561		560Ω 5% 0.1W
3700	4822 051 20224		220k 5% 0.1W
3701	4822 052 10338	△	3Ω3 5% 0.33W
3706	4822 051 20103		10k 5% 0.1W
3707	4822 051 20103		10k 5% 0.1W
3708	4822 051 20103		10k 5% 0.1W
3710	4822 051 20103		10k 5% 0.1W
3711	4822 051 20332		3k3 5% 0.1W
3713	4822 051 20103		10k 5% 0.1W
3714	4822 051 20103		10k 5% 0.1W
3715	4822 051 20332		3k3 5% 0.1W
3716	4822 051 20103		10k 5% 0.1W
3717	4822 051 20103		10k 5% 0.1W
3718	4822 051 20103		10k 5% 0.1W
3719	4822 051 20103		10k 5% 0.1W
3720	4822 051 20103		10k 5% 0.1W
3721	4822 051 20103		10k 5% 0.1W
3722	4822 051 10102		1k 2% 0.25W
3723	4822 051 10102		1k 2% 0.25W

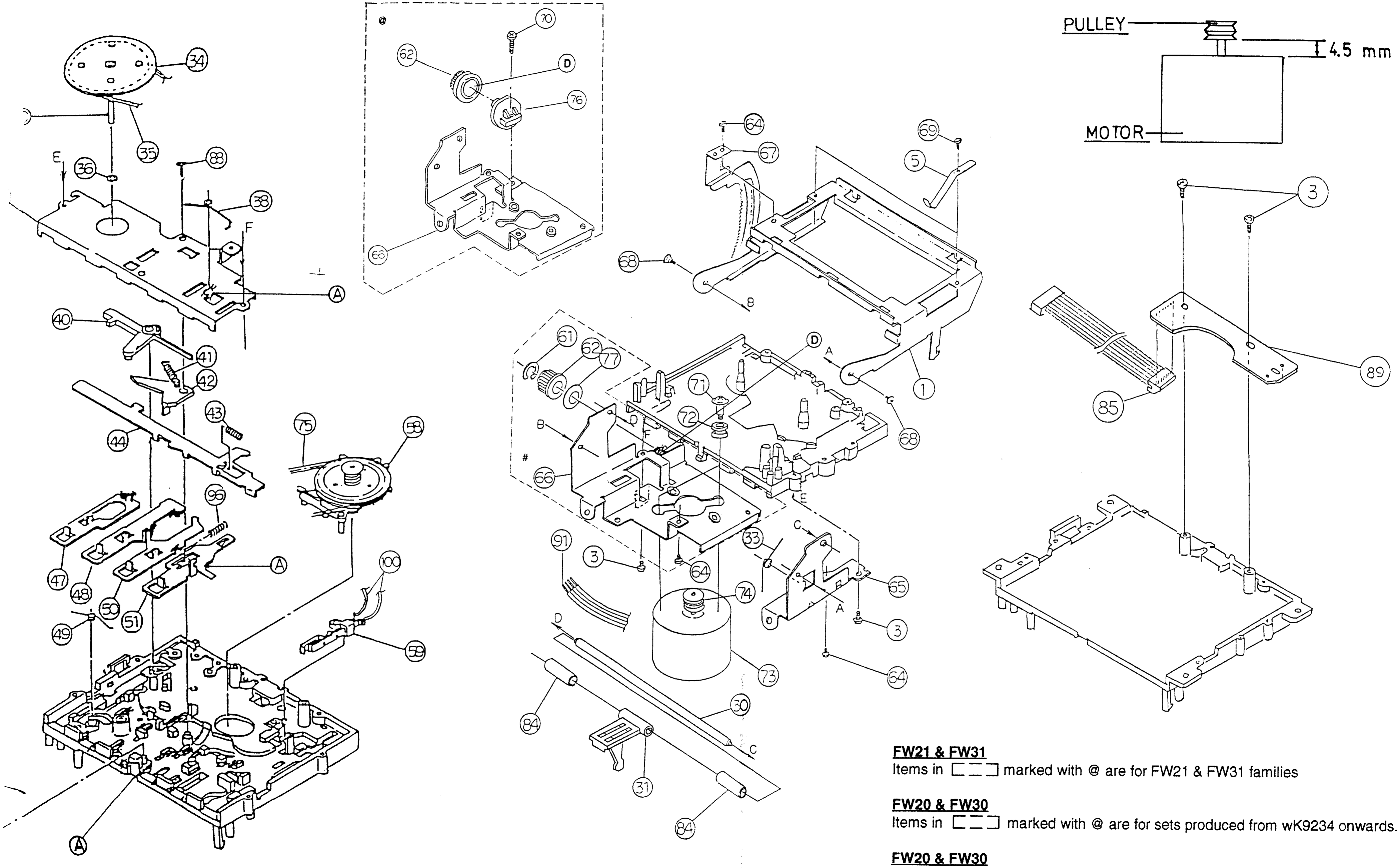
3724	4822 051 10102	1k 2% 0.25W
4000	4822 051 10008	0Ω 5% 0.25W
4001	4822 051 10008	0Ω 5% 0.25W
4002	4822 051 10008	0Ω 5% 0.25W
4003	4822 051 10008	0Ω 5% 0.25W
4004	4822 051 10008	0Ω 5% 0.25W
4104	4822 051 10008	0Ω 5% 0.25W
4105	4822 051 10008	0Ω 5% 0.25W
4106	4822 051 10008	0Ω 5% 0.25W
4107	4822 051 10008	0Ω 5% 0.25W
4108	4822 051 10008	0Ω 5% 0.25W
4109	4822 051 10008	0Ω 5% 0.25W
4200	4822 051 10008	0Ω 5% 0.25W
4302	4822 051 10008	0Ω 5% 0.25W
4600	4822 051 10008	0Ω 5% 0.25W
4700	4822 051 10008	0Ω 5% 0.25W
4701	4822 051 10008	0Ω 5% 0.25W

6103	4822 130 30621	1N4148
6550	4822 130 31981	BZX79-C3V9
6660	4822 130 34173	BZX79-C5V6

7000	4822 209 31064		TDA1301T/N1
7040	4822 130 60887		BF840
7041	5322 130 41982		BC848B
7042	5322 130 41983		BC858B
7043	5322 130 41982		BC848B
7044	5322 130 41982		BC848B
7060	4822 209 72587		TCA0372DP2
7080	4822 209 72587		TCA0372DP2
7101	4822 209 63925		FCB61C65L-70T
7102	4822 209 30388		SAA7341GP
7140	5322 130 42012		BC858
7141	4822 130 61207		BC848
7300	4822 209 83274		NJM4560D
7301	4822 209 83274		NJM4560D
7360	4822 130 42804		BC817-25
7361	4822 130 42804		BC817-25
7362	5322 130 42012		BC858
7500	4822 209 80891	△	MC78M05CT
7550	5322 130 42012		BC858
7660	4822 209 72587		TCA0372DP2
7700	4822 900 10318		MC68HC05C8/SERVO-S17

PLAY DECK EXPLODED VIEW


78
2
6
85
7
10
11
B
8
6
90
55
9
22
23
102
93
15
19
20
86
24
12
87
A
3
21
C
81
18
25
101
80
A
26
97
B
29
28
B
34
C
35
E
36
88
37
38
F
A
40
41
42
43
44
75
58
96
47
48
50
A
51
49
100
59
60
A
@
70
62
D
76
66
64
67
68
B
61
62
77
D
71
72
B
D
F
#
66
E
C
91
3
33
64
74
D
73
30
84
C
31
84


PULLEY
4.5 mm
MOTOR
@
#
34
35
36
88
38
E
F
A
40
41
42
43
44
47
48
49
50
51
96
A
75
58
100
59
A
70
62
D
76
66
64
67
69
5
68
B
1
A
68
61
62
77
71
72
D
B
66
3
64
33
C
65
A
3
64
91
74
73
D
84
30
C
31
84
3
89
85
E
F

FW21 & FW31

Items in [ ] marked with @ are for FW21 & FW31 families

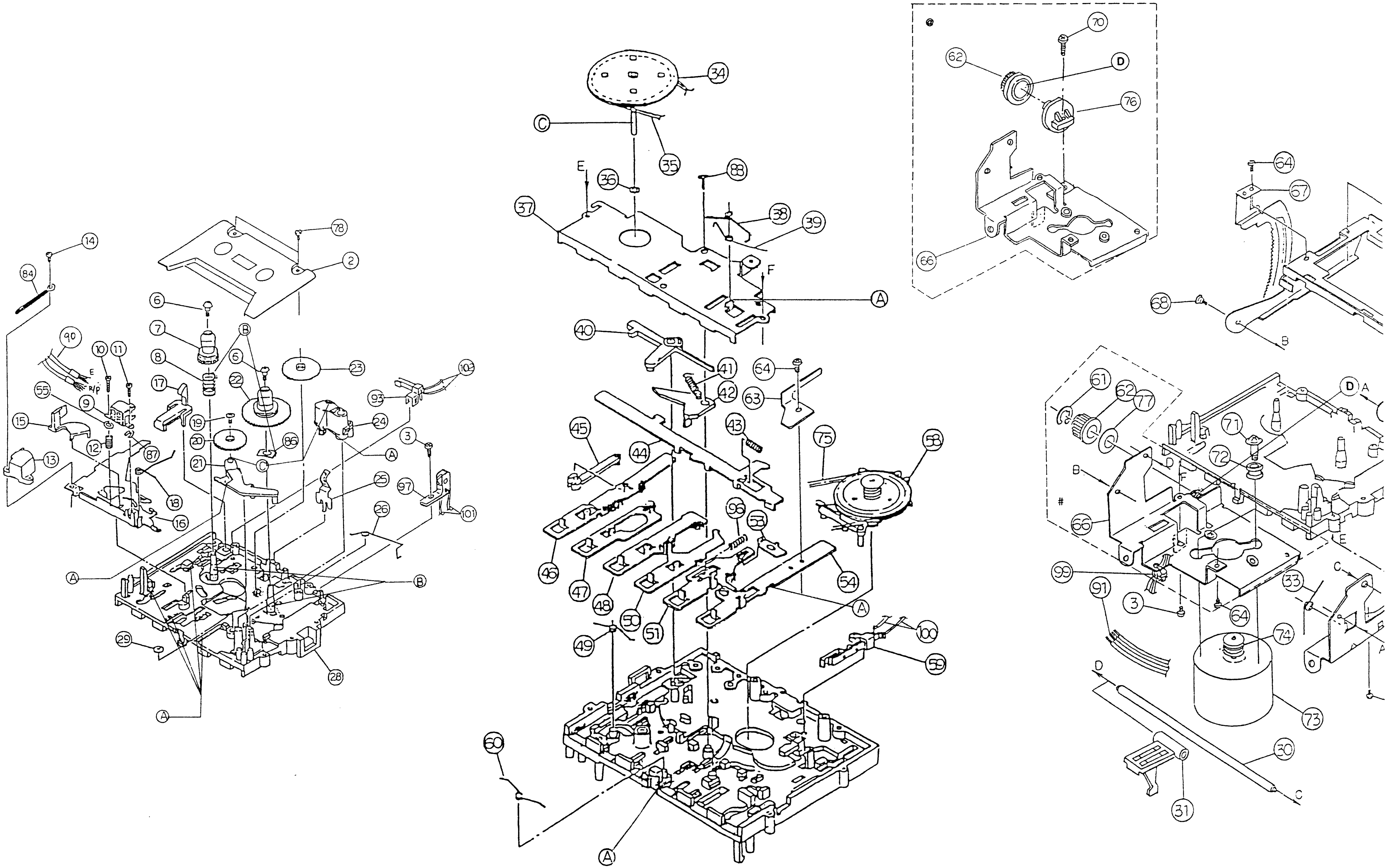
FW20 & FW30

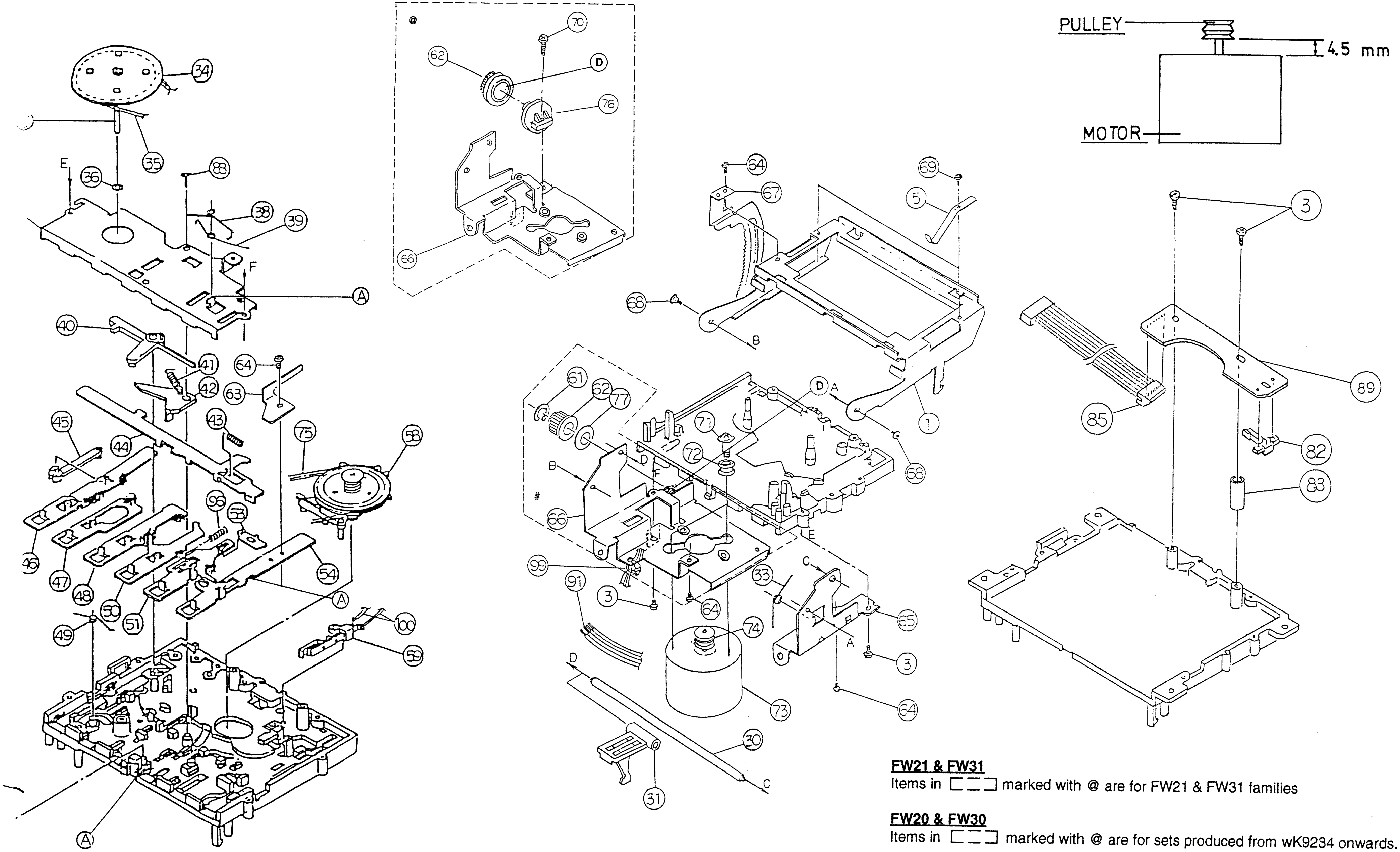
Items in [ ] marked with @ are for sets produced from wK9234 onwards.

FW20 & FW30

Items in [ ] marked with # are for sets produced before wK9234.

RECORD/PLAYBACK DECK EXPLODED VIEW


14
78
84
2
6
7
90
10
11
B
8
6
23
103
E
R/P
55
9
17
22
93
15
19
24
3
20
86
12
87
A
13
21
C
25
97
101
18
16
26
A
B
29
28
A
34
C
35
E
36
88
37
38
39
F
A
40
41
64
42
63
45
43
75
58
44
96
53
46
47
48
50
51
54
A
49
100
59
60
A
70
62
D
76
66
64
67
68
B
61
62
77
D
A
71
72
B
D
F
66
#
E
99
91
3
64
33
C
74
A
D
73
30
C
31


PULLEY
4.5 mm
MOTOR
@
#
34
35
36
88
38
39
E
F
A
40
41
42
64
63
45
44
43
75
58
46
47
48
96
53
54
50
51
49
100
59
A
A
70
62
D
76
66
64
67
69
5
3
68
B
61
62
77
D
A
1
71
72
68
66
B
D
F
E
C
99
91
3
64
33
65
A
74
3
73
64
D
30
31
C
85
89
82
83

FW21 & FW31

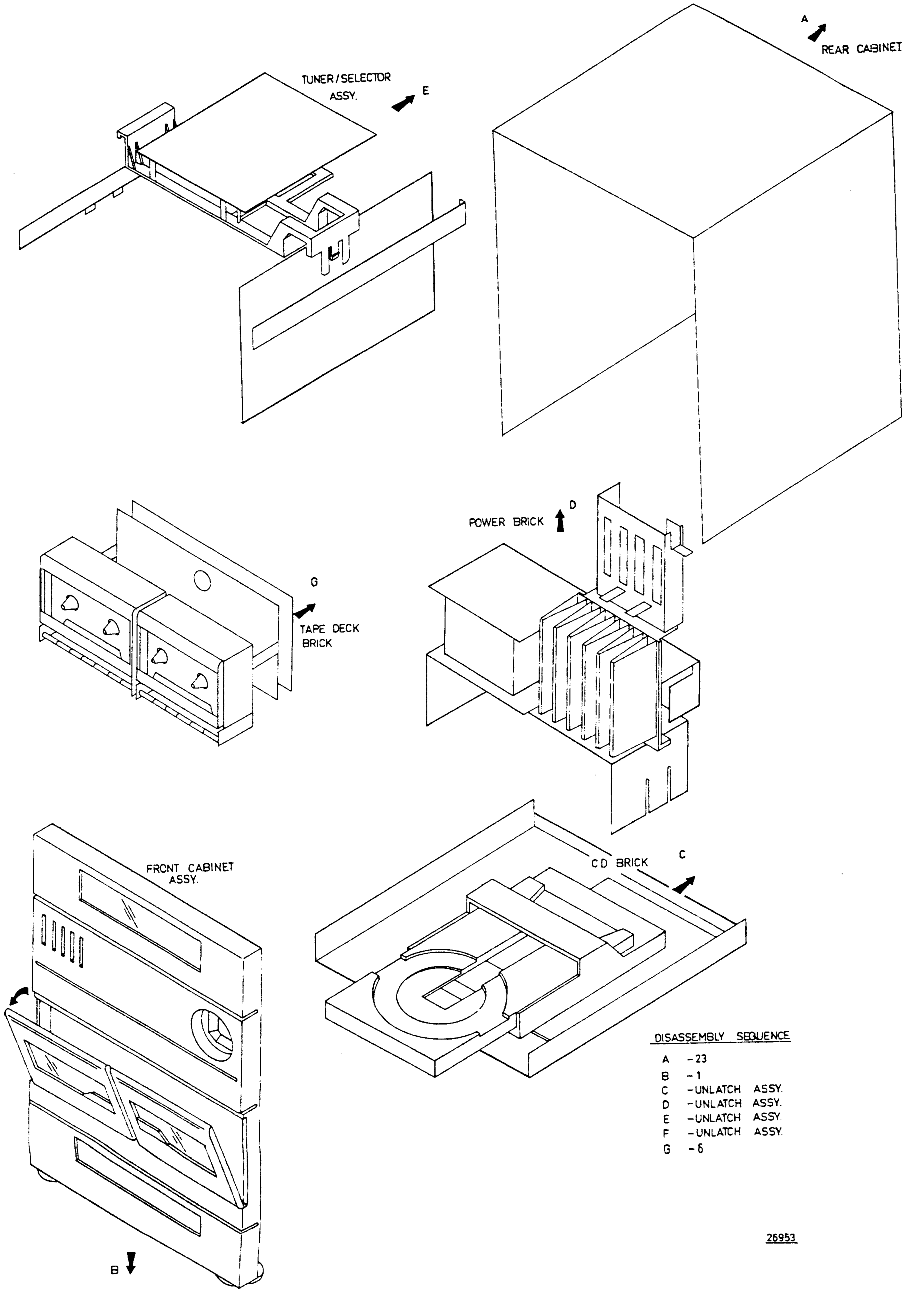
Items in [_ _] marked with @ are for FW21 & FW31 families

FW20 & FW30

Items in [_ _] marked with @ are for sets produced from wK9234 onwards.

FW20 & FW30

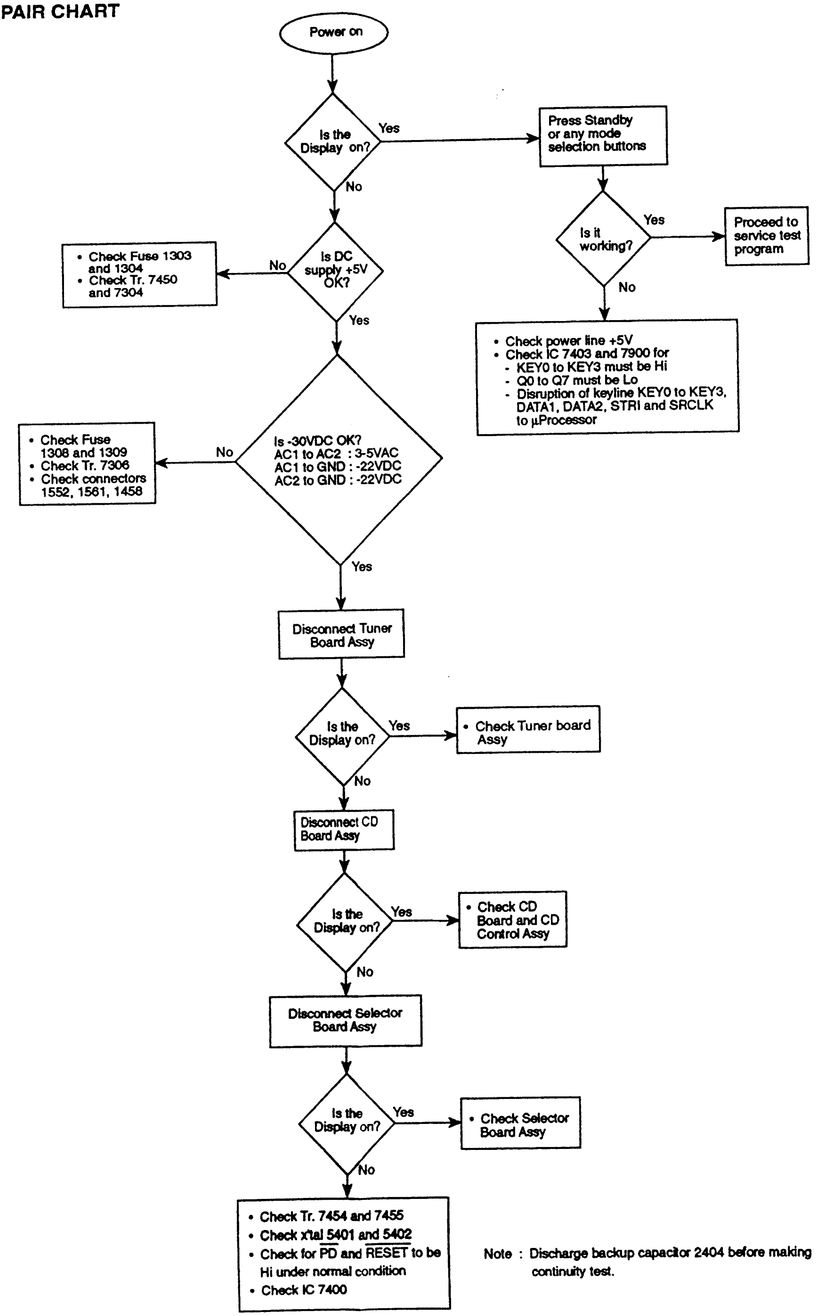
Items in [_ _] marked with # are for sets produced before wK9234.


A
REAR CABINET
TUNER / SELECTOR ASSY.
E
POWER BRICK
D
G
TAPE DECK BRICK
FRONT CABINET ASSY.
F
CD BRICK
C
B
26953

DISASSEMBLY SEQUENCE

A -23
B -1
C -UNLATCH ASSY.
D -UNLATCH ASSY.
E -UNLATCH ASSY.
F -UNLATCH ASSY.
G -6

REPAIR CHART


Power on
Is the Display on?
Yes
No
Press Standby or any mode selection buttons
Is it working?
Yes
Proceed to service test program
No
• Check power line +5V
• Check IC 7403 and 7900 for
- KEY0 to KEY3 must be Hi
- Q0 to Q7 must be Lo
- Disruption of keyline KEY0 to KEY3, DATA1, DATA2, STRI and SRCLK to µProcessor
Is DC supply +5V OK?
No
• Check Fuse 1303 and 1304
• Check Tr. 7450 and 7304
Yes
Is -30VDC OK?
AC1 to AC2 : 3-5VAC
AC1 to GND : -22VDC
AC2 to GND : -22VDC
No
• Check Fuse 1308 and 1309
• Check Tr. 7306
• Check connectors 1552, 1561, 1458
Yes
Disconnect Tuner Board Assy
Is the Display on?
Yes
• Check Tuner board Assy
No
Disconnect CD Board Assy
Is the Display on?
Yes
• Check CD Board and CD Control Assy
No
Disconnect Selector Board Assy
Is the Display on?
Yes
• Check Selector Board Assy
No
• Check Tr. 7454 and 7455
• Check x'tal 5401 and 5402
• Check for $\overline{\text{PD}}$ and $\overline{\text{RESET}}$ to be Hi under normal condition
• Check IC 7400

Note : Discharge backup capacitor 2404 before making continuity test.

SERVICE TEST PROGRAM 1

Operating sequence	Display shows	Remarks	In case of problems check
Hold "Program" and "Preset Up" button down while Power on to enter Service test program.	μProcessor version # SERVICE	The master μProcessor version is display. After 2 seconds the "SERVICE" display appear.	
Press "Program"	PROM OK	Eeprom test	Check IC 7402 if Display indicate "PROM DEF".
Press "Autoprogram" CAUTION: Activating this test will reset all presets, MW grid, 12/24 Hr clock and LW on/off feature.	CLR PROM	Clear Eeprom	
Press "Set clock" Repeated activation of "Set clock" will toggle between "SERVICE" and "32 KHZ".	32 KHZ	The Alarm buzzer is turned on and the clock is aligned by trimmer 2410 for 4096Hz at pin 10 of 1457 or pin 4 of 7400.	Check X'tal 5402.
Press "News"	KEY		
Press all other buttons	See Figure 1	Hexadecimal codes will be display.	
Press "News"	KEY OK	"KEY OK" is display.	"KEY * * *" will be display when failure or incomplete key test is done.
	SERVICE	After 2 seconds the "SERVICE" screen is restored.	Check the respective keyline in case an error occurs.
Press "Timer"	Full Display	Spatial LED is on while DBB LED is off. If the full display is left on for sometime, it will be change to "0"s.	Check display and power lines.
Press "Preset Up"	Half Display	DBB and Spatial sound LEDs turns on.	
Press "Preset Up"	Other half Display	DBB and Spatial sound LEDs turn off.	
Press "BAND" Repeated activation will toggle between "FAST" and "NORM" clock.	FAST CLK NORM CLK SERVICE	Use this to change the clock/timer speed function. In the fast mode quick customer check in the clock/alarm function can be done. Normal speed clock will be restored by Power off or activating reset button. After 2 seconds the "SERVICE" screen will be restored.	
Press "Standby" to end the service test program.			

# Note: FW** xx - OTP version
FW** x - Maskversion
where FW** refers to the Type No.
xx or x refers to the version.

SERVICE TEST PROGRAM 2

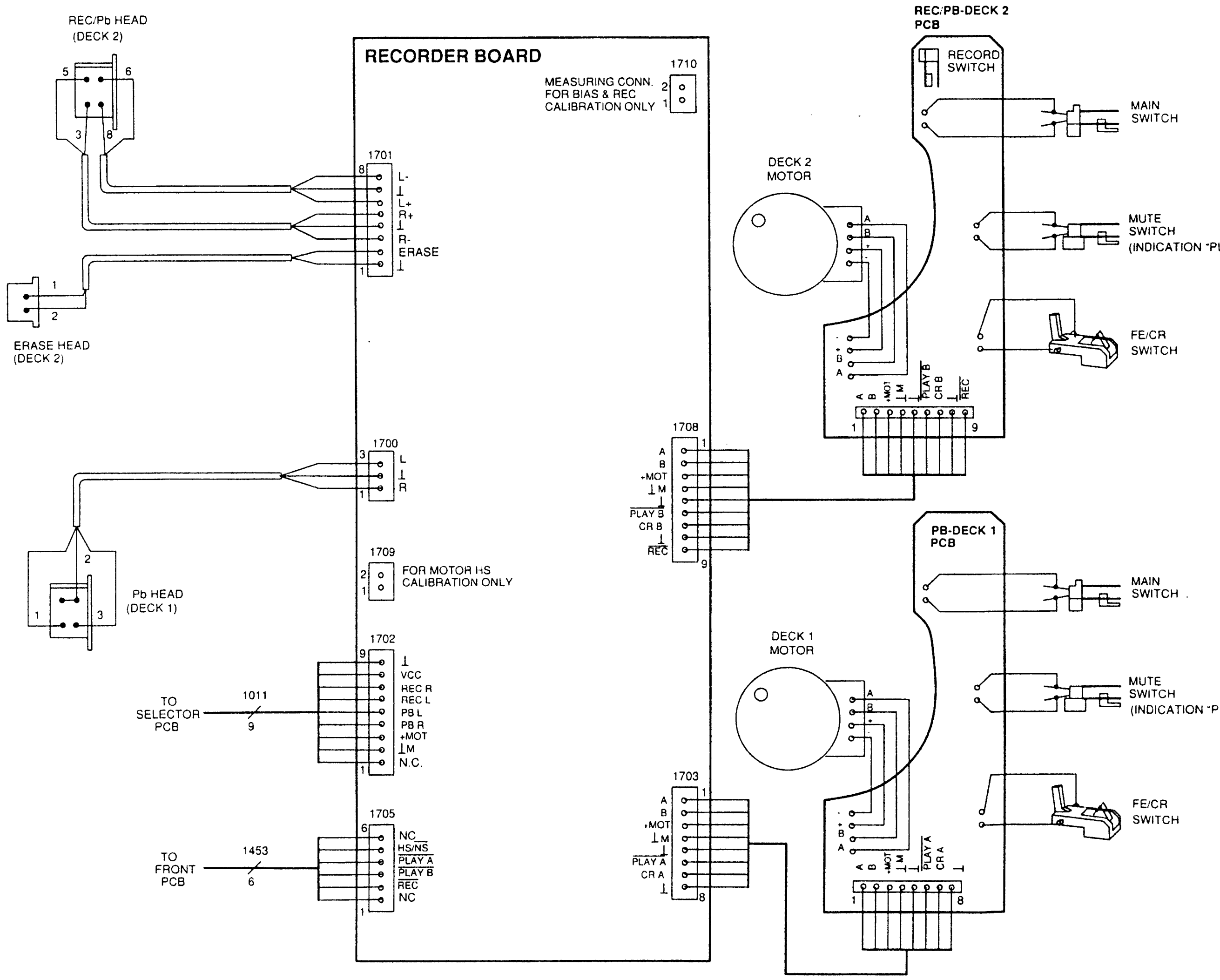
Operating sequence	Display shows	Remarks	In case of problems check
To perform CD test press "CD" at the "SERVICE" screen.	SERVO YY	The CD servo version is display. YY = version number	Pressing the "Play" key at the "SERVICE" screen will enter into normal CD mode except error codes are display. A list of error codes are found in figure 3.
Press "Stop" - Service pos 0	SLEDGE	During this test the sledge will move outward.	
Press "Next" - Service pos 1	FOCUS	Focus is switch on.	
Press "Next" - Service pos 2	MOTOR	Disc motor is switch on.	
Press "Next" - Service pos 3	RADIAL	Radial is switch on.	
Pressing "Previous" will bring the set to the previous service mode.			
To end the Service test program press "Standby" at the "SERVICE" screen.			
To perform Tuner test ensure no disc is in the CD tray and press "Tuner" at the "SERVICE" screen.	Tuner version	Tuner version is scrolled in the display.	
Use the "Preset Up" and "Preset down" to display the loaded frequencies.	See figure 2	Service frequencies are now loaded into the EEROM of the μProcessor.	
	PROGRAM	FM auto-search level: With input level at 15μV adjust 3125 until "PROGRAM" just appear.	
Use Power off or Reset button to exit the Service program			

TRADE MODE

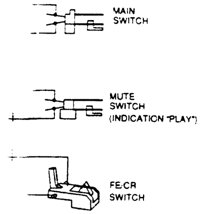
Operating sequence	Display shows	Remarks
Hold "Aux" and "Tape" down while Power on to enter the Trade mode. To exit Trade mode press the "Reset" button.	Commercial Story	During Trade mode the set provides 3 minutes of normal performance before returning to Trade mode. If during the normal function no sound source is detected it will return to Trade mode after 10 seconds.

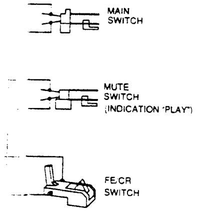
Suppl.

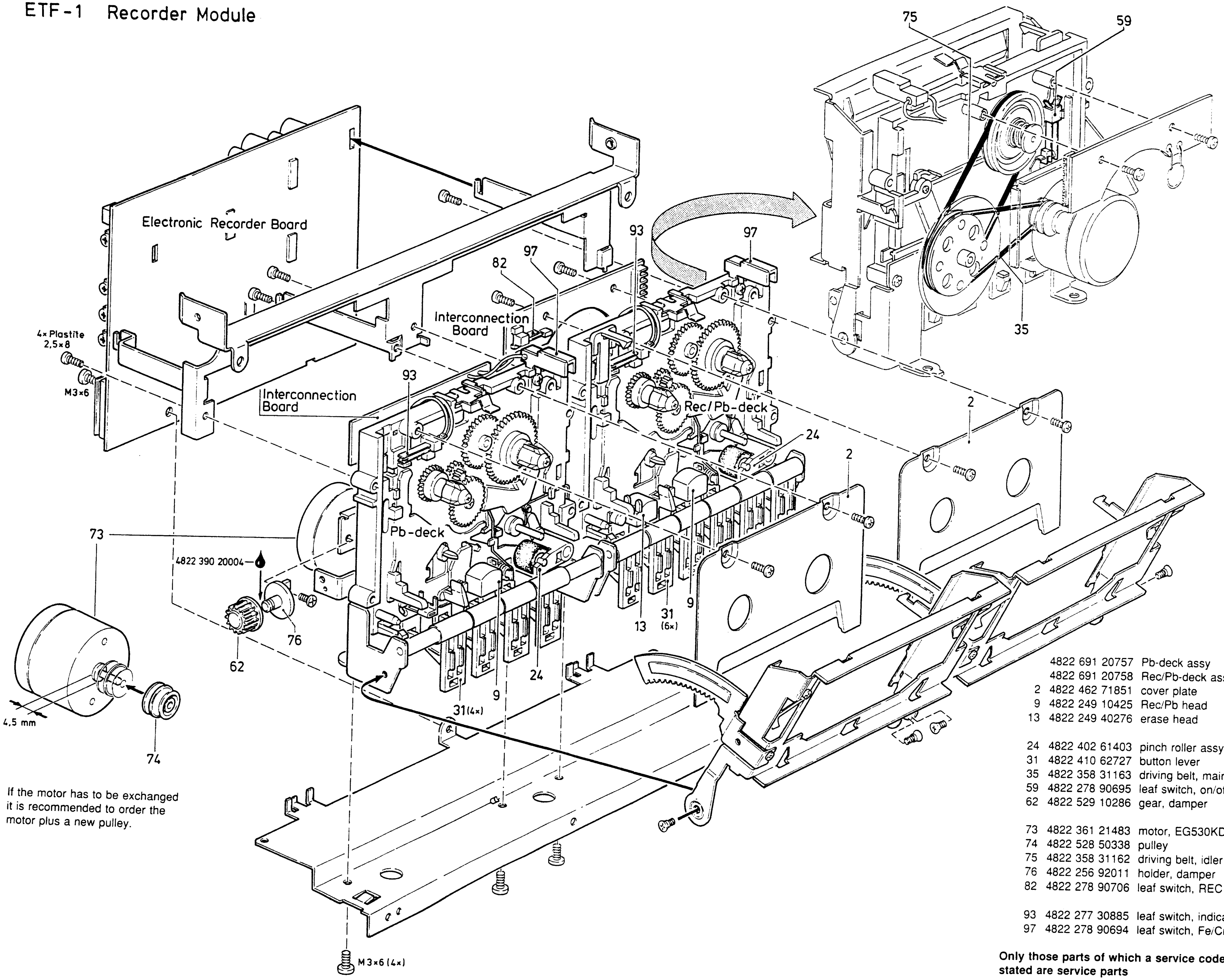
WIRING DIAGRAM
RECORDER MODULE


REC/Pb HEAD
(DECK 2)
5
6
3
8
ERASE HEAD
(DECK 2)
1
2
RECORDER BOARD
1710
MEASURING CONN.
FOR BIAS & REC
CALIBRATION ONLY
1701
L-
⊥
L+
R+
⊥
R-
ERASE
⊥
1700
L
⊥
R
Pb HEAD
(DECK 1)
1709
FOR MOTOR HS
CALIBRATION ONLY
1702
⊥
VCC
REC R
REC L
PB L
PB R
+MOT
⊥M
N.C.
TO
SELECTOR
PCB
1011
9
1705
NC
HS/NS
PLAY A
PLAY B
REC
NC
TO
FRONT
PCB
1453
6
1708
A
B
+MOT
⊥M
⊥
PLAY B
CR B
⊥
REC
1703
A
B
+MOT
⊥M
⊥
PLAY A
CR A
⊥
REC/PB-DECK 2
PCB
RECORD
SWITCH
MAIN
SWITCH
DECK 2
MOTOR
MUTE
SWITCH
(INDICATION "P
FE/CR
SWITCH
PB-DECK 1
PCB
MAIN
SWITCH
DECK 1
MOTOR
MUTE
SWITCH
(INDICATION "P
FE/CR
SWITCH

ETF-1 Recorder Module


MAIN SWITCH
MUTE SWITCH (INDICATION "PLAY")
FE/CR SWITCH

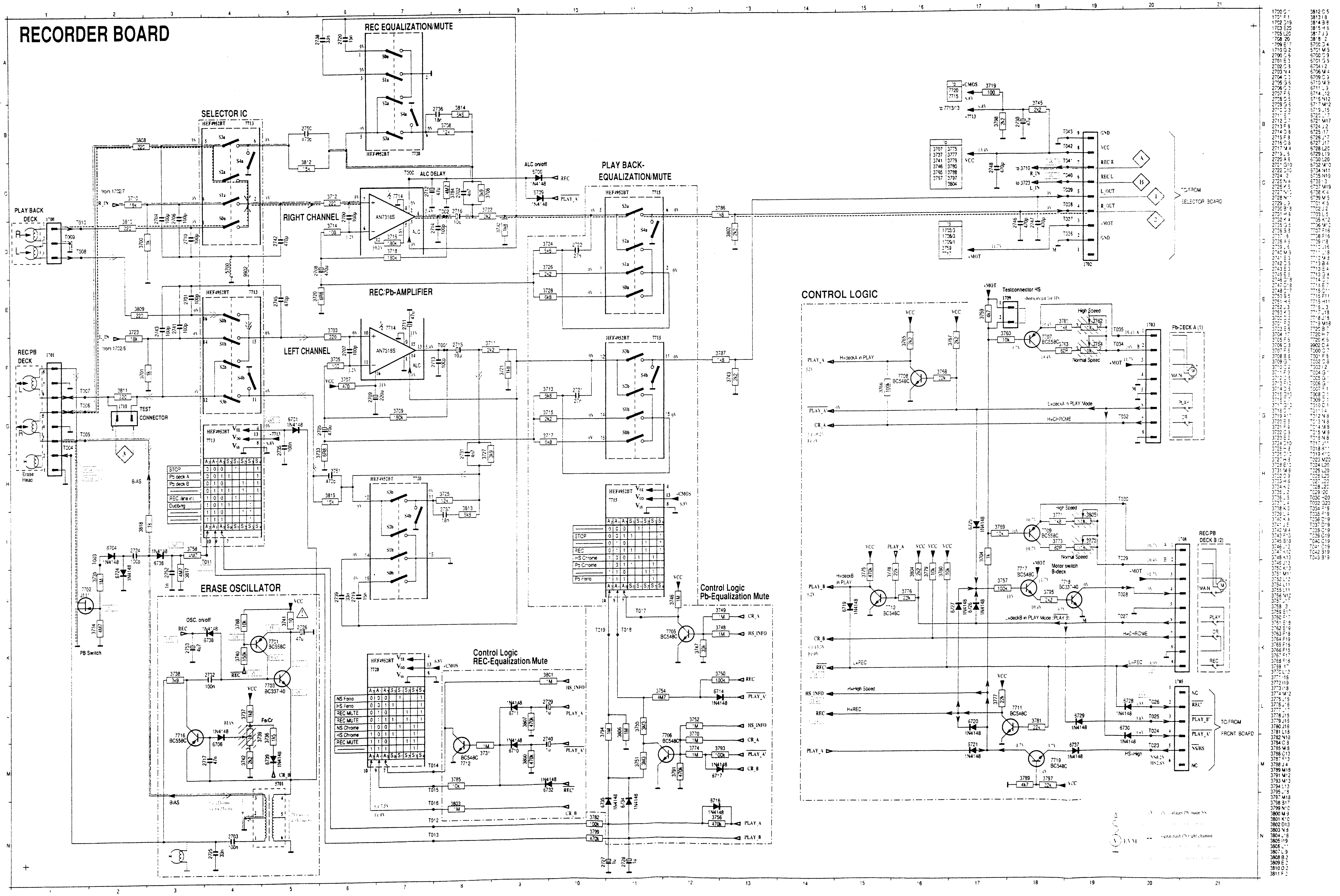

MAIN SWITCH
MUTE SWITCH (INDICATION "PLAY")
FE/CR SWITCH


75
59
Electronic Recorder Board
93
97
82
97
93
Interconnection Board
Interconnection Board
4× Plastite 2,5×8
M3×6
35
Rec/Pb-deck
2
24
2
Pb-deck
73
4822 390 20004
76
62
13
31 (6×)
9
9
24
31 (4×)
4,5 mm
74
M3×6 (4×)

If the motor has to be exchanged it is recommended to order the motor plus a new pulley.

	4822 691 20757	Pb-deck assy
	4822 691 20758	Rec/Pb-deck assy
2	4822 462 71851	cover plate
9	4822 249 10425	Rec/Pb head
13	4822 249 40276	erase head
24	4822 402 61403	pinch roller assy
31	4822 410 62727	button lever
35	4822 358 31163	driving belt, main
59	4822 278 90695	leaf switch, on/off
62	4822 529 10286	gear, damper
73	4822 361 21483	motor, EG530KD-2B
74	4822 528 50338	pulley
75	4822 358 31162	driving belt, idler
76	4822 256 92011	holder, damper
82	4822 278 90706	leaf switch, REC
93	4822 277 30885	leaf switch, indication *PLAY*
97	4822 278 90694	leaf switch, Fe/Cr

Only those parts of which a service code number is stated are service parts


RECORDER BOARD
REC EQUALIZATION/MUTE
SELECTOR IC
PLAY BACK DECK
RIGHT CHANNEL
LEFT CHANNEL
REC/Pb-AMPLIFIER
ALC DELAY
ALC on/off
PLAY BACK-EQUALIZATION/MUTE
REC/PB DECK
TEST CONNECTOR
Erase Head
BIAS
ERASE OSCILLATOR
OSC. on/off
PB Switch
FeCr
Control Logic REC-Equalization/Mute
Control Logic Pb-Equalization Mute
CONTROL LOGIC
Testconnector HS
Pb-DECK A (1)
REC/PB DECK B (2)
Motor switch B-deck
High Speed
Normal Speed
H=deckA in PLAY
L=deckA in PLAY Mode
H=CHROME
L=deckB in PLAY Mode (PLAY B)
H=High Speed
H=REC
L=REC
HS=High
TO/FROM SELECTOR BOARD
TO/FROM FRONT BOARD
AN7318S
HEF4952BT
BC548C
BC558C
BC337-40
1N4148
STOP
Pb deck A
Pb deck B
REC (line in)
Dubbing
REC
HS Chrome
Pb Chrome
Pb Ferro
NS Ferro
HS Ferro
REC MUTE
NS Chrome
GND
VCC
REC R
REC L
L_OUT
R_OUT
+MOT
PLAY_A
PLAY_B
CR_A
CR_B
HS_INFO
NC
+CMOS

PCS 63 832

RECORDER ADJUSTMENT TABLE

Adjustment	Cassette/Source	Recorder mode	Measure on	Read on	Adjust with	Adjust to
Azimuth 1)	SBC419 or SBC420 10kHz	PLAY A-Deck (1) PLAY B-Deck (2)	◇1 ◇2 or Phone socket	mV - meter	left-hand screw	maximum output left = right
Motor speed 2)						
High speed 3)	SBC419 or SBC420 3150Hz	PLAY A-Deck (1) PLAY B-Deck(2)	◇1 ◇2 or Phone socket	Counter	A-Deck(1) 3762 B-Deck(2) 3805	5670Hz ±1,5%
Normal speed				Wow and Flutter meter or Counter	A-Deck(1) 3764 B-Deck(2) 3772	0 ±1%
Bias current 4)	Chrome cassette	REC B-Deck(2)	◇3	mV-meter	3739 (left)	130mV
	Ferro cassette	REC B-Deck(2)	◇3		check only	95 ±10mV

CHECK ONLY

Check	Cassette/Source	Recorder mode	Measure on	Read on	Check if
Wow and Flutter	SBC419 or SBC420 3150Hz	PLAY A-Deck(1) PLAY B-Deck(2)	◇1 ◇2 or Phone socket	Wow and Flutter meter	≤ 0,3% weighted
Erase Oscillator					
Voltage	any	REC B-deck(2)	erase head	mV - meter	Fe 7 ±1 V_{rms} Cr 10 ±1,5 V_{rms}
Frequency			◇3	Counter	f = 65kHz ± 5kHz
Playback level	SBC419 or SBC420 315Hz	PLAY A-Deck(1) PLAY B-Deck(2)	◇1 ◇2	mV - meter	300mV ± 2,5dB
Frequency response					
Playback	SBC419 or SBC420	PLAY A-Deck(1) PLAY B-Deck(2)	◇1 ◇2	mV - meter	80Hz - 12,5kHz within 8dB
Overall	◇A ◇B input level = 2,5mV	REC B-Deck(2)			
		PLAY B-Deck(2)			100Hz - 10kHz within 8dB (100Hz - 8kHz HS dubbing)
Distortion	SBC419 or SBC420 ◇A ◇B input level = 100mV	REC B-Deck(2)			
		PLAY B-Deck(2)	◇1 ◇2	mV - meter	D ≤ 5%

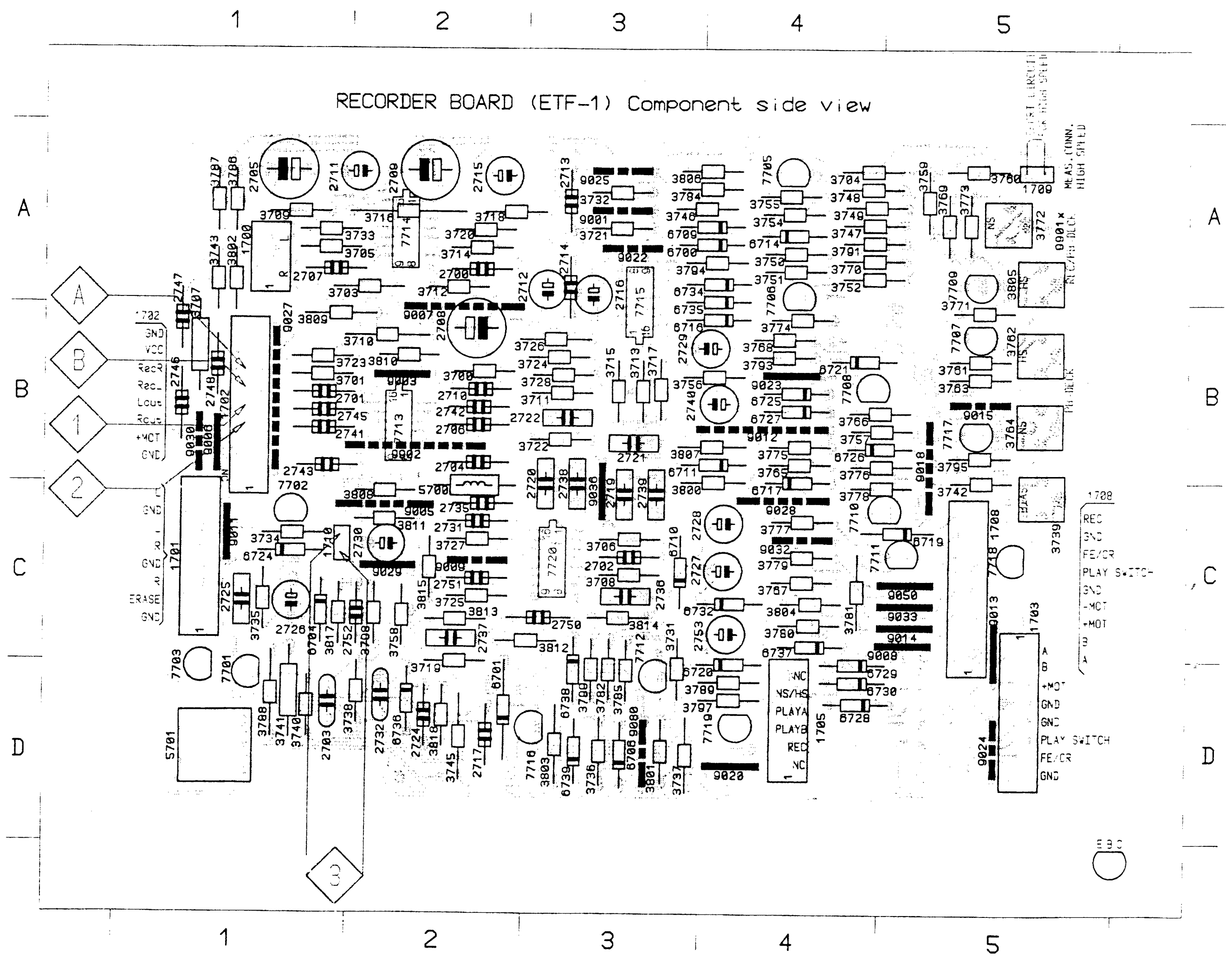
ETF-1.FW20

SBC 420 Service code: 4822 397 30071
SBC 419 Service code: 4822 397 30069

1) For Azimuth adjustment set needs not to be dismantled. Remove ornamental part of cassette door only.
2) Difference between A-Deck(1) and B-Deck(2) ≤2%.
3) Adjust *High Speed* first. To switch to *High Speed* in *Play Back* mode, shortcircuit pins of testconnector 1709.
4) Check *Pb level, Frequency Response* and *Distortion* after recording: 300mV ± 2,5dB, D ≤5% - otherwise readjust bias current.

RECORDER BOARD

1700	A	1
1701	C	1
1702	B	1
1703	D	5
1705	D	4
1708	C	5
1709	A	5
1710	C	1
2700	A	2
2701	B	1
2702	C	3
2703	D	1
2704	B	2
2705	A	1
2706	B	2
2707	A	1
2708	B	2
2709	A	2
2710	B	2
2711	A	2
2712	A	3
2713	A	3
2714	A	3
2715	A	2
2716	A	3
2717	D	2
2719	C	3
2720	C	3
2721	B	3
2722	B	3
2724	D	2
2725	C	1
2726	C	1
2727	C	4
2728	C	4
2729	B	4
2730	C	2
2731	C	2
2732	D	2
2735	C	2
2736	C	3
2737	C	2
2738	C	3
2739	C	3
2740	B	4
2741	B	1
2742	B	2
2743	B	1
2745	B	1
2746	B	1
2747	B	1
2748	B	1
2750	C	3
2751	C	2
2752	C	2
2753	C	4
3700	B	2
3701	B	1
3703	A	2
3704	A	4
3705	A	1
3706	C	3
3707	B	1
3708	C	3
3709	A	1
3710	B	2
3711	B	3
3712	A	2
3713	B	3
3714	A	2
3715	B	3
3716	A	2
3717	B	3
3718	A	2
3719	D	2
3720	A	2
3721	A	3
3722	B	3
3723	B	1
3724	B	3
3725	C	2
3726	B	3
3727	C	2
3728	B	3
3731	D	3
3732	A	3
3733	A	1
3734	C	1
3735	C	1
3736	D	3
3737	D	3
3738	D	2
3739	C	5
3740	D	1
3741	D	1
3742	C	5
3743	A	1
3745	D	2
3746	A	4
3747	A	4
3748	A	4
3749	A	4
3750	A	4
3751	A	4
3752	A	4
3754	A	4
3755	A	4
3756	B	4
3757	B	5
3758	C	2
3759	A	5
3760	A	5
3761	B	5
3762	B	5
3763	B	5
3764	B	5
3765	B	4
3766	B	4
3767	C	4
3768	B	4
3769	A	5
3770	A	4
3771	B	5
3772	A	5
3773	A	5
3774	B	4
3775	B	4
3776	B	5
3777	C	4
3778	C	5
3779	C	4
3780	C	4
3781	C	4
3782	D	3
3784	A	4
3785	D	3
3786	A	1
3787	A	1
3788	D	1
3789	D	4
3791	A	4
3793	B	4
3794	A	4
3795	B	5
3797	D	4
3798	C	2
3799	D	3
3800	C	4
3801	D	3
3802	A	1
3803	D	3
3804	C	4
3805	A	5
3806	A	4
3807	B	4
3808	C	2
3809	B	1
3810	B	2
3811	C	2
3812	C	3
3813	C	2
3814	C	3
3815	C	2
3817	C	1
3818	D	2
5700	C	2
5701	D	1
6700	A	4
6701	D	2
6704	C	1
6706	D	3
6709	A	4
6710	C	3
6711	B	4
6714	A	4
6716	B	4
6717	C	4
6719	C	5
6720	D	4
6721	B	4
6724	C	1
6725	B	4
6726	B	4
6727	B	4
6728	D	4
6729	D	4
6730	D	4
6732	C	4
6734	A	4
6735	A	4
6736	D	2
6737	C	4
6738	D	3
6739	D	3
7701	D	1
7702	C	1
7703	D	1
7705	A	4
7706	A	4
7707	B	5
7708	B	4
7709	A	5
7710	C	5
7711	C	5
7712	D	3
7716	D	3
7717	B	5
7718	C	5
7719	D	4
9001	A	3
9003	B	2
9005	C	2
9006	B	1
9007	B	2
9008	C	5
9009	C	2
9011	C	1
9012	B	4
9013	C	5
9014	C	5
9015	B	5
9018	B	5
9020	D	4
9022	A	3
9023	B	4
9024	D	5
9025	A	3
9027	B	1
9028	C	4
9029	C	2
9030	B	1
9032	C	4
9033	C	5
9036	C	3
9050	C	5
9080	D	3
9902	B	2
7713	B	2
7714	A	2
7715	A	3
7720	C	3


RECORDER BOARD (ETF-1) Component side view

RECORDER BOARD (ETF-1) ELECTRICAL PARTLIST

2700	4822 122 33195	100pF 10% 50V
2701	4822 122 33195	100pF 10% 50V
2702	4822 126 11714	4.7nF 20%
2703	5322 121 42386	100nF 5% 63V
2704	4822 122 33195	100pF 10% 50V
2705	4822 124 42218	470µF 20% 10V
2706	4822 122 33195	100pF 10% 50V
2707	4822 122 33195	100pF 10% 50V
2708	4822 124 42218	470µF 20% 10V
2709	4822 124 40196	220µF 20% 16V
2710	4822 122 33195	100pF 10% 50V
2711	4822 124 40433	47µF 20% 25V
2712	4822 124 40433	47µF 20% 25V
2713	4822 122 33195	100pF 10% 50V
2714	4822 122 33195	100pF 10% 50V
2715	4822 124 40248	10µF 20% 63V
2716	4822 124 40248	10µF 20% 63V
2717	4822 126 12785	47nF 50V
2719	4822 121 51305	15nF 10% 50V
2720	4822 121 51305	15nF 10% 50V
2721	4822 121 43187	27nF 10% 63V
2722	4822 121 43187	27nF 10% 63V
2724	4822 122 33195	100pF 10% 50V
2725	5322 121 42489	33nF 5% 100V
2726	4822 124 40433	47µF 20% 25V
2727	4822 124 40242	1µF 20% 63V
2728	4822 124 40242	1µF 20% 63V
2729	4822 124 40242	1µF 20% 63V
2730	4822 124 40433	47µF 20% 25V
2731	4822 126 11714	4.7nF 20%
2732	5322 121 42386	100nF 5% 63V
2735	4822 126 12882	100nF 50V
2736	4822 121 43179	18nF 5% 63V
2737	4822 121 43179	18nF 5% 63V
2738	5322 121 42489	33nF 5% 100V
2739	5322 121 42489	33nF 5% 100V
2740	4822 124 41398	1µF 20% 63V
2741	4822 122 33195	100pF 10% 50V
2742	4822 122 33519	470pF 10% 50V
2743	4822 122 33195	100pF 10% 50V
2745	4822 122 33519	470pF 10% 50V
2746	4822 122 33519	470pF 10% 50V
2747	4822 122 33519	470pF 10% 50V
2748	4822 122 33519	470pF 10% 50V
2750	4822 122 33519	470pF 10% 50V
2751	4822 122 33519	470pF 10% 50V
2752	4822 122 33197	1nF 10% 50V
2753	4822 124 40246	4.7µF 20% 63V

3700	4822 050 11002	1k 5% 0.2W
3701	4822 050 11002	1k 5% 0.2W
3703	4822 116 52215	220Ω 5% 0.16W
3704	4822 050 11002	1k 5% 0.2W
3705	4822 116 52175	100Ω 5% 0.5W
3706	4822 116 52276	3k9 5% 0.5W
3707	4822 116 52224	470Ω 5% 0.5W
3708	4822 116 52238	12k 5% 0.5W
3709	4822 116 52252	180k 5% 0.5W
3710	4822 116 52251	18k 5% 0.5W
3711	4822 116 52256	2k2 5% 0.16W
3712	4822 116 52215	220Ω 5% 0.16W
3713	4822 116 52289	5k6 5% 0.16W
3714	4822 116 52175	100Ω 5% 0.5W
3715	4822 116 52256	2k2 5% 0.16W
3716	4822 116 52252	180k 5% 0.5W
3717	4822 116 52296	6k8 5% 0.5W
3718	4822 116 52252	180k 5% 0.5W
3719	4822 116 52175	100Ω 5% 0.5W
3720	4822 050 26808	6Ω8 1% 0.6W
3721	4822 116 52249	1k8 5% 0.16W
3722	4822 116 52256	2k2 5% 0.16W
3723	4822 116 52251	18k 5% 0.5W
3724	4822 116 52289	5k6 5% 0.16W
3725	4822 116 52238	12k 5% 0.5W
3726	4822 116 52256	2k2 5% 0.16W
3727	4822 116 52276	3k9 5% 0.5W
3728	4822 116 52296	6k8 5% 0.5W
3731	4822 116 52235	1M 5% 0.5W
3732	4822 116 52249	1k8 5% 0.16W
3733	4822 050 26808	6Ω8 1% 0.6W
3734	4822 111 30893	4M7 5% 0.2W
3735	4822 116 52235	1M 5% 0.5W
3736	4822 116 52243	1k5 5% 0.16W
3737	4822 116 52249	1k8 5% 0.16W
3738	4822 116 52276	3k9 5% 0.5W
3739	4822 100 11348	Trimmer 1k lin.
3740	4822 116 52245	150k 5% 0.16W
3741	4822 052 10109 △	10Ω 5% 0.33W
3742	4822 116 52256	2k2 5% 0.16W
3743	4822 116 52256	2k2 5% 0.16W
3745	4822 116 52256	2k2 5% 0.16W
3746	4822 116 52235	1M 5% 0.5W
3747	4822 116 52271	33k 5% 0.16W
3748	4822 116 52235	1M 5% 0.5W
3749	4822 116 52235	1M 5% 0.5W
3750	4822 116 52234	100k 5% 0.5W
3751	4822 111 50499	3M3 5% 0.2W
3752	4822 116 52235	1M 5% 0.5W
3754	4822 111 30893	4M7 5% 0.2W
3755	4822 111 50499	3M3 5% 0.2W
3756	4822 116 52285	470k 5% 0.5W
3757	4822 116 52234	100k 5% 0.5W
3758	4822 111 30893	4M7 5% 0.2W
3759	4822 116 52283	4k7 5% 0.5W
3760	4822 116 52233	10k 5% 0.5W
3761	4822 116 52249	1k8 5% 0.16W
3762	4822 100 11348	Trimmer 1k lin.
3763	4822 116 52202	82Ω 5% 0.1 6W
3764	4822 100 11348	Trimmer 1k lin.
3765	4822 116 52256	2k2 5% 0.16W
3766	4822 116 52234	100k 5% 0.5W
3767	4822 116 52256	2k2 5% 0.16W
3768	4822 116 52257	22k 5% 0.5W
3769	4822 116 52233	10k 5% 0.5W
3770	4822 116 52235	1M 5% 0.5W
3771	4822 116 52249	1k8 5% 0.16W
3772	4822 100 11348	Trimmer 1k lin.
3773	4822 116 52202	82Ω 5% 0.1 6W
3774	4822 116 52235	1M 5% 0.5W
3775	4822 116 52285	470k 5% 0.5W
3776	4822 116 52257	22k 5% 0.5W
3777	4822 116 52257	22k 5% 0.5W
3778	4822 116 52257	22k 5% 0.5W
3779	4822 116 52233	10k 5% 0.5W
3780	4822 116 52233	10k 5% 0.5W
3781	4822 116 52257	22k 5% 0.5W
3782	4822 116 52234	100k 5% 0.5W
3784	4822 111 30893	4M7 5% 0.2W
3785	4822 116 52233	10k 5% 0.5W
3786	4822 116 52249	1k8 5% 0.16W
3787	4822 116 52249	1k8 5% 0.16W
3788	4822 116 52233	10k 5% 0.5W
3789	4822 116 52283	4k7 5% 0.5W
3791	4822 116 52285	470k 5% 0.5W
3793	4822 116 52234	100k 5% 0.5W
3794	4822 116 52235	1M 5% 0.5W
3795	4822 116 52256	2k2 5% 0.16W
3797	4822 116 52257	22k 5% 0.5W
3798	4822 116 52256	2k2 5% 0.16W
3799	4822 116 52285	470k 5% 0.5W
3800	4822 116 52285	470k 5% 0.5W
3801	4822 116 52235	1M 5% 0.5W
3802	4822 116 52256	2k2 5% 0.16W
3803	4822 116 52235	1M 5% 0.5W
3804	4822 116 52256	2k2 5% 0.16W
3805	4822 100 11348	Trimmer 1k lin.
3806	4822 116 52235	1M 5% 0.5W
3807	4822 116 52285	470k 5% 0.5W
3808	4822 116 52215	220Ω 5% 0.16W
3809	4822 116 52215	220Ω 5% 0.16W
3810	4822 116 52215	220Ω 5% 0.16W
3811	4822 116 52215	220Ω 5% 0.16W
3812	4822 116 52244	15k 5% 0.5W
3813	4822 116 52289	5k6 5% 0.16W
3814	4822 116 52289	5k6 5% 0.16W
3815	4822 116 52244	15k 5% 0.5W
3817	4822 111 30893	4M7 5% 0.2W
3818	4822 050 11002	1k 5% 0.2W

5700	4822 157 60147	Coil 2.2µH
5701	4822 156 20946	Osc. Coil 100kHz

6700	4822 130 30621	1N4148
6701	4822 130 30621	1N4148
6704	4822 130 30621	1N4148
6706	4822 130 30621	1N4148
6709	4822 130 30621	1N4148
6710	4822 130 30621	1N4148
6711	4822 130 30621	1N4148
6714	4822 130 30621	1N4148
6716	4822 130 30621	1N4148
6717	4822 130 30621	1N4148
6719	4822 130 30621	1N4148
6720	4822 130 30621	1N4148
6721	4822 130 30621	1N4148
6724	4822 130 30621	1N4148
6725	4822 130 30621	1N4148
6726	4822 130 30621	1N4148
6727	4822 130 30621	1N4148
6728	4822 130 30621	1N4148
6729	4822 130 30621	1N4148
6730	4822 130 30621	1N4148
6732	4822 130 30621	1N4148
6734	4822 130 30621	1N4148
6735	4822 130 30621	1N4148
6736	4822 130 30621	1N4148
6737	4822 130 30621	1N4148
6738	4822 130 30621	1N4148
6739	4822 130 30621	1N4148

7701	5322 130 60068	BC558C
7702	4822 130 63494	J111
7703	4822 130 41344	BC337-40
7705	4822 130 44196	BC548C
7706	4822 130 44196	BC548C
7707	5322 130 60068	BC558C
7708	4822 130 44196	BC548C
7709	5322 130 60068	BC558C
7710	4822 130 44196	BC548C
7711	4822 130 44196	BC548C
7712	4822 130 44196	BC548C
7716	5322 130 60068	BC558C
7717	4822 130 44196	BC548C
7718	4822 130 41344	BC337-40
7719	4822 130 44196	BC548C
7713	4822 209 32919	HEF4952BT
7714	4822 209 32918	AN7318S
7715	4822 209 32919	HEF4952BT
7720	4822 209 32919	HEF4952BT

Note: Only the parts mentioned in this list are normal service spare parts.

MISCELLANEOUS AND ACCESSORIES

	MISCELLANEOUS	
1021	4822 691 20757	Play YM47CW-91
1022	4822 691 20758	Rec/Pb YM47CW-92
	4822 445 10353	Loudspeaker Assy
	4822 445 10354	Loudspeaker Assy -/37
	ACCESSORIES	
	4822 218 10463	Remote Control
	4822 736 21701	Instruction for use
	4822 736 21702	Instruction for use -/37

Note : Only the mentioned parts are normal service parts.

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les piéces de rechange identiques à celles spécifiées.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

(I)
Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

(S) Varning!

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(SF) Varo!

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen!

Service Information

1993 - 05 - 26

FW21 Family

A93 - 625

Product Service Group CE Audio

FW21 (all versions)
Fault : Rec/PCB frequency response problem (Tapecore Board)

Remedy : Change 2663/2664 from 560pF to 470pF 50V 10% 4822 122 33519
2785/2786 from 470pF to 100pF 50V 5% 4822 126 10777
3665/3666 from 56k to 33k 5% 0.1W 4822 051 10333
3667/3668 from 12k 5.6k 5% 0.1W 4822 116 52289
3763/3764 from 22k to 27k 5% 4822 116 52264
3775 from 12k to 10k 5% 0.1W 4822 116 52233
3798 from 12k to 15k 5% 0.1W 4822 116 52244

Production : From wk 9323.1 production onwards.

FW21/20/21/37 (ECO-4 Tuner Board)
Due to tolerances of TAE5712T, it is necessary to ensure that the **ECO-4 Tuner** will switch on stereo with 7% pilot-ton-modulation.

Remedy : Change 3112 from 22k to 27k 5% 4822 051 20273.

FW21/20/21/37 (ECO-4 Tuner Board)
To improve alignment of ECO-4 Tuner
change 3149 from 82k to 68k 5% 4822 051 20683.

FW21 All Versions

A93 - 675

Product Service Group CE Audio

Service Information

The following changes have been implemented during production:

From week 9349 onwards, a new Recorder board (ETF-1) will be introduced to replace the existing Tape core board. Due to this introduction the serial no will be changed from:

SV 01 .... to SV 02 ....

Enclosed are the electrical parts list, new wiring diagram, schematic diagram, layout diagram, adjustment table and simplified tape mechanism exploded view.

Resistor 3569 on the Front board is also changed from 4k7 to 10Ω 0.1W 5% 4822 051 20109 to ensure good matching with the new Recorder board (ETF-1).

FW20, FW21, FW30, FW31, FW40 & FW41

A96 - 151

Product Service Group CE Audio

Service Information

Symptom:
CD does not function due to dust collection on the CD lens. When cleaning disc is used, it merely moves the dust into the chamber in which the CD lens is mounted.

Fault:
The problem is due to the air circulation within the set.

Solution:
The problem is solved by mounting a dust cover over the CD lens area as shown in Figure 1 (For sets without transformer shield) and Figure 2 (For sets with transformer shield).
The service code for the dust cover is 4822 466 10931.

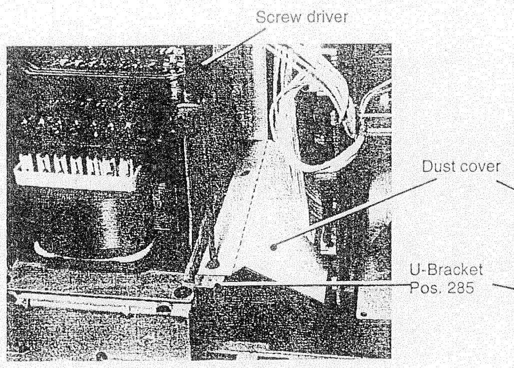


Fig. 1 Set without Transformer shield

Tighten the Dust cover with 2 screws

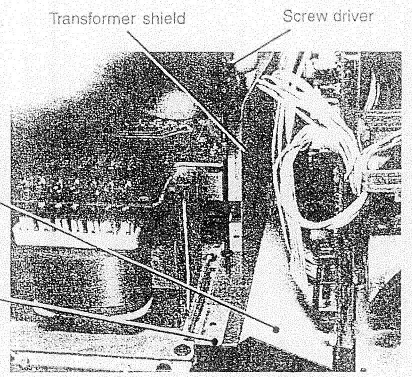


Fig. 2 Set with Transformer shield

Tighten mounting screw with the Dust cover place between Transformer shield and U-bracket.